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THE HUMANE SIDE OF WARFARE.

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War has always been and always will be a great national calamity. The deliberate, legitimate killing of men on the field of battle has remained as a necessary evil and continues to receive the sanction of the most civilized peoples when it becomes necessary to protect the rights of nations, tribes or individuals, and to diffuse liberty and humanity by a contest of arms.

Under the influence of modern civilization the legitimate causes for war are becoming less and less from one century to another, and warfare itself more and more humane. The battlefield itself is rapidly losing its barbaric aspects and is assuming the scene of a dignified, manly contest between the armed forces representing the *casus belli*. Personal ambition, the spirit of revenge, religious fanaticism, individual and national greed, which so often have provoked war in the past, seldom suffice now in inciting nations to a resort to arms. A declaration of war among civilized nations at the present time means that some great principle concerning the rights of an individual, community, or nation is at stake, and which can not be adjusted by peaceable measures. The people and not potentates take upon themselves the responsibility of deciding between peace and war. Nations no longer blindly follow the dictates of their rulers in exchanging the plowshare for the sword. Those in power consult the public pulse before they declare for war. The public press, that moulds the opinions and governs the judgment of the masses, has become a great power in the administration of public affairs, and more especially in arousing or abating the spirit of warfare. When the *casus belli* is recognized and endorsed by the people, it kindles the flame of patriotism, which for the time overshadows political convictions, religious sentiments, and sectional feelings and interests, and harmonizes action in the defense of the flag which represents their rights and honor. The most pleasing features of modern warfare in the defense of a just cause, recognized as such by the government and endorsed by the people, are the efforts made in all civilized countries to make it more and more humane. The intense hatred toward the enemy, the mutilation of the dead, murder of the wounded, and robbery that have disgraced the battlefields of the past are no longer witnessed when civilized nations take upon themselves the responsibility of settling international disputes by calling into the field their armed forces. The horrors of Sebastopol, Gettysburg, Solferino, Waterloo, Sedan and other great battles during the present century will have no equal in the future. Ignominious death from cold, starvation and preventable diseases will not figure so conspicuously in the mortuary records of future wars as they have done in the past. Governments and nations are beginning to realize more fully the importance of providing the soldier with food and clothing conducive to the preservation of his health and bringing into effective action sanitary rules and regulations calculated to guard against preventable diseases. Each army is accompanied by an adequate force of men qualified to take proper care of the sick and wounded. Ambulances, hospital ships, and trains are furnished and equipped for the early and comfortable transportation of the sick. Surgeons specially trained for their work accompany the combatant to the very firing line, to extend to the wounded the blessings of the first-aid dressing almost the moment the soldier is struck down by the enemy's bullet. Field hospitals, with all the modern facilities for the sick and wounded, and competent, well-trained nurses, male and female, follow the footsteps of the moving army, ready at a moment's notice to take proper care of the disabled soldiers. The prisoners of war are safe in the enemy's camp and receive the most humane treatment, and the soldiers incapacitated as combatants are regarded and treated as neutral, friend and foe, without distinction. The gospel of humanitarian warfare was conceived by Henry Dunant during and after the battle of Solferino and found full expression in his now famous pamphlet, "Souvenir de Solferino." His suggestions to militate the horrors of war laid the foundation for the proceedings of the Geneva Convention, which convened April 22, 1864. The Red Cross Association, the fruit of the Geneva Convention, has its representative organizations in all parts of the civilized globe and is the pioneer agency in disposing of the barbarities and unnecessary cruelties of active warfare. Other noble organizations have sprung into existence everywhere, ready and anxious to be helpful to the soldier in the field. During the Civil War the North alone furnished 2,600,000 men, to restore the shattered Union and to protect the flag of which every American citizen is now so justly proud. Of this immense army 280,000 never returned to enjoy the blessings of a reunited country. The unavoidable deprivations and sufferings during that great conflict live in the memories of many aged veterans who survived, and their individual experiences are detailed around the camp fires from time to time. It was during that war that the patriotic men and women at home placed in the hands of the sanitary commission $22,000,000 in cash, and perhaps nearly an equal sum in other contributions to relieve the immediate needs of the soldiers in the front and rear. A similar effort characterized the action of the various benevolent associations organized during the short but epoch-making campaign of the late Spanish-American War. These actions speak louder than words in announcing to the world the good and joyful news that warfare, cruel as it necessarily and always must be, is nevertheless assuming a more humane aspect.

Recent well-meant efforts, inaugurated from a source from where it was least expected, made for the purpose of substituting for war law and arbitration in the settlement of international difficulties, have not yielded the expected results. It is a move in the right direction, but it is a long time ahead of the requisite degree of civilization over the whole inhabited surface of the globe to justify the disarmament of the powerful nations so actively engaged, at the present time, in enlightening and educating the ignorant and superstitious in the most remote parts of the world. In due time the vision of the prophet Micah will become a reality, but the conditions upon which it is based must first be fulfilled, and the implements of warfare have an important mission to perform before that happy dream of perpetual peace will become a reality. The geography of the world is in need of a revision, and much of that work will have to be accomplished by a resort to the sword. Nations, like individuals, have their grievances, which often can only be adjusted by force after peaceable, friendly measures have utterly failed. The Lord of battles still reigns and occasionally finds it feasible and wise to assign to the children of men the bloody task of correcting wrongs by a contest of arms. With the progress of civilization, well-founded causes for war are becoming more and more infrequent, and warfare itself more and more humane. The science and art of war have kept well abreast with the wonderful discoveries which have characterized the closing century. Brute force, so essential in a successful hand-to-hand encounter, has been made to yield to the employment of long-range arms of wonderful design and most perfect mechanism. The new weapons of destruction have recast military strategy. The wars since 1870 have demonstrated to the world that victory is achieved by nations which recognize the importance of modern methods of warfare and which are ready for action at a moment's notice, and by military leaders who are competent to devise well-matured plans ahead, and who have the necessary foresight to execute them at the opportune time. While war, with all its cruelties, suffering and privations, can not be entirely dispensed with at the present time, it is a source of consolation and an indication of advancing civilization to note the growing tendencies manifested everywhere to divest it of all unnecessary horrors and to impart to it a humane aspect by establishing international rules and regulations in consonance with the humanitarian spirit which prevails at the present time, and which is beginning to invade the very limits of civilization. The Geneva Convention and its precious fruit, the Red Cross Association, and the late Peace Conference, are the mouthpieces of all humanitarians who have labored faithfully and incessantly to lift away from the battlefield the dark cloud of barbarism and unnecessary cruelty, and illuminate it with the bright, warm sunshine of humanity. The Red Cross and its practical semblance, the red crescent in Mohammedan countries, follows the battleflags of all armies which adhere to the conditions of the Geneva Convention, and around them are gathered the sick and wounded with the assurance of having reached a place of safety, and with the expectation of receiving kindly treatment. It is in these cases, over which the neutral flag waves in the midst of the tumult of war, that the disabled warriors, friend and foe, meet and receive the same treatment, regardless of the uniform they wear or the flag to which they had sworn allegiance and were engaged to defend. These sacred neutral grounds, so near the line of battle, on each side are the places where the most touching scenes are enacted, which exhibit in a most vivid manner the humane side of modern as compared with ancient warfare. It is my purpose to describe a few instances of this kind which happened during the late Spanish-American War during my service in the field as chief of the operating staff. While on temporary duty at the First Division Hospital, before Santiago de Cuba, I was given an opportunity to visit the enemy's camp on an errand of mercy. A few days after the battles of El Caney and San Juan, I was invited, by Dr. Goodfellow, to accompany him on a trip to El Caney, and from there to the Spanish line, as he had received instructions from headquarters to transfer a number of wounded Spaniards across our line. On that day hostilities were suspended, and with proper precautions we had no fear of being molested on our way. Santiago and the Spanish army were enclosed inland by the besieging army arranged in the form of a crescent, and our battleships, like a row of silent, motionless sentinels, guarded the outlet of the harbor. Escape in either direction was impossible. For once the Spanish army had found an opportunity to show its fighting strength on Cuban soil. The battle of El Caney and the valiant charge on San Juan Hill were well calculated to convince the Spaniards what the American soldiers were capable of doing. The commanding general of the Spanish forces knew well that one more decisive battle would bring about certain defeat, and at the expense of hundreds of lives of his countrymen who were pledged to defend the interests and honor of Spain at any cost. The experiences of the preceding few days wrought a meditative mood in his mind, and he was then seriously considering the terms of surrender which had been made, and for the contemplation of which the white flag was planted on the breastworks on both sides for a space of twenty-four hours. In number, the two armies were nearly equal; the sea was open to us for reinforcements, provisions and ammunition; the harbor of Santiago was blockaded by our victorious, invincible fleet, ready to pour shot and fire into the besieged, deserted city, at a signal. It was under such conditions that our memorable visit to the Spanish camp was made. Although our troops in the trenches were resting on their arms, there was great activity between the fighting line and general headquarters for miles distant. Troops were being rushed to the front to occupy the trenches in turn or to take part in the attack on the Spanish line in case the terms of surrender were not accepted at the expiration of the specified time. Ammunition trains and batteries were on the way toward the fighting line to complete the necessary arrangements for the final attack. Orderlies hastened to and from the front conveying orders and messages in both directions. Active preparations were being made at the field hospitals for the reception and prompt treatment of the expected wounded. The continued rains had made the military roads almost impassable for man and beast, but the work was being accomplished with marvelous promptitude in spite of all obstacles, under the stimulus of the occasion and the intense patriotism which animated every soldier. The day was extremely sultry after the heavy rains, and one of the most uncomfortable and hottest of the whole campaign. The sun appeared on a cloudless sky, and under the burning, almost scalding, rays the vapor rose in the form of an almost suffocating mist during the early hours of the morning. Four ambulances, the necessary number of hospital-corps men, and a small detachment of cavalry were sent in advance to El Caney, and we rode over a narrow, ill-defined trail, through the dense forest and deserted plantations, in the same direction by a short cut, expecting to meet the party

at El Caney about noon. As we rode through patches of high guinea grass, we repeatedly scared up the wild guinea-hen, the game bird of the country, singly and in pairs. In the forests and fields we found, here and there, small encampments of our soldiers with nothing but their simplest field outfits, waiting anxiously for orders to advance. As we approached the neighborhood of El Caney, the scenes of active warfare were more frequent and pronounced. Men, women and children, the unfortunate refugees from Santiago, sought shelter in the forest, and rambled about aimlessly in search of cocoanuts and mangos with which to quench their thirst and satisfy their sense of hunger. Recent graves showed us where some of our comrades had fallen in the battle but a few days before. Numerous diminutive new mounds indicated where dead horses were incompletely buried. The stench in some places was almost unbearable, and had attracted a large number of vultures and crows from a distance. It is doubtful if these flying scavengers of the country ever before found such a rich harvest, for the thin crust of loose soil over the putrefying carcasses could be readily scratched away, furnishing them with food for weeks and months to come.

We found El Caney densely packed with refugees. The little town perched on the hill has its central square, and it was here that the mass of humanity was most compact. At least fifteen thousand had sought refuge here, and it is difficult to imagine a more motley crowd. Men and women, old and young, rich and poor, educated and ignorant, well and sick, were struggling for something to eat and drink. Side by side with the ragged and more than half naked could be seen well-dressed men and women, but money was of little use because there was little or nothing to buy. We found it very difficult to force our horses through the surging, seething mass of humanity to the old stone church, built in the center of the village on the very crest of the hill, where we met our ambulance train at about 2 p.m. The entrance of the church was guarded by an American soldier, and a young officer was in charge of the small detachment that had been detailed to maintain peace and order in the little town so recently liberated from Spanish rule. Inside the church we found the wounded prisoners of war we were to return to their command. They presented a sight which when once seen will never be forgotten. All were in bad physical condition in consequence of disease and inadequate food supply. The faded uniforms of striped calico bore evidences of prolonged usage. The facial expressions were such as result from a continuation of pain and the depressing effects of defeat. In thought and language they were indeed strangers in the land they yet called their own. Perhaps their only consolataion at the time consisted in the fact that their prison was a house of worship. But what a change even this sanctuary had undergone during the short siege! Undoubtedly the Spaniards took possession of the church before and during the battle. Everything that would remind one of being in a place of worship had been removed, including the altar and baptismal font: nothing but the bare walls and stone floor remained. The priest had deserted the place where he was in the habit of chanting mass during the early morning hours, and he undoubtedly took away with him what he considered sacred, as we found the vestry as desolate and empty as the interior of the church. In the vestry we found a representative of the American Red Cross Association, who was dealing out, from the limited food-supply in his possession, flour and crackers in small quantities to the imploring, hungry crowd that occupied every available inch of space for some distance beyond the vestry door, each impatiently awaiting his turn to receive from the advance agent of that organization the much-needed but limited food. The soldiers who were in charge of the prisoners treated them kindly, but it was beyond their means and power to procure for them the food and comfort they required, and what made the situation still more distressing was the fact that they were unable to converse with each other. A word of comfort or assurance under such circumstances is often more effective than medicine, and more beneficial than food and drink. The more seriously wounded were lying in a row on the bare, stone floor. Among these I found one who was shot in the middle of the back, completely paralyzed below the seat of injury, showing that the spinal cord was severed by the bullet. He had passed the stage of suffering, the wound had become infected, he had a high fever, the eyes were staring, the facial expression meaningless, pupils contracted, pulse almost imperceptible, the extremities cold and livid. It was plain that the infection had extended to the meninges of the spinal cord and brain, from the effects of which he was then dying. The remaining sixteen were in a condition to justify their transportation. The curious motley crowd watched the loading of the four ambulances with the mangled human freight, with no special interest, and certainly without any outward manifestations of sympathy. The contents of my canteen gave out long before our work was done, and, with a boldness engendered by torturing thirst, I approached more than one soldier, begging for a drink of lukewarm water of doubtful source. I had been an ardent advocate of the theory that prophylaxis against disease during an active campaign consisted largely in procuring for the soldier pure or sterilized water; the stern experience of that day gave me an excellent opportunity to study the subject from a practical standpoint. Thirst is a terrible tyrant and will listen neither to argument nor reason. I never questioned the contents of the different canteens that were so liberally offered on request, as long as they relieved the torturing thirst, and I made up my mind that under similar circumstances every soldier will satisfy thirst by any kind of water within his reach. It is under such conditions that we find it much easier to preach than to practice, as suffering will not be governed by any fixed rules and regulations as long as immediate relief is in sight beyond their limitations, even at the risk of remote disastrous consequences. On leaving headquarters in the morning we were informed that lunch would be served at the church on our arrival. On the completion of our work a can of the now famous roast beef and a few "hard tacks" were produced; from where these articles came we did not know, but they were very much appreciated at the time, as we were not only thirsty but were craving for something to eat, and we had been in training long enough to be content with army rations furnished during a forced campaign in a semitropical country. After our hunger was appeased and the thirst quenched, the little procession started for our line, and in the direction of General Lawton's headquarters, where, on our arrival, we made a short stop for the purpose of securing the services of an orderly and to obtain a white flag with which to give the signal beyond our line as soon as we would come in sight of the Spaniards. With these additions the ambulance train again advanced over the principal road leading to Santiago, but came to a standstill when we were about to cross our breastworks, at a point where a deep ditch intersected the road, which had been made as a matter of precaution in case our troops had to retreat, when the Spanish artillery

would have lost some time in pursuit while repairing the road. The officer in command of the troops at that point immediately detailed a few men who, in a remarkably short time, made the road passable for our ambulances, and we resumed the journey in the direction of Santiago. From our breastworks the Spanish line was in plain sight and the principal buildings in Santiago could be very plainly discerned. What attracted our attention most was the enormous Red Cross flag which floated over the military hospital. The breastworks on both sides were nearly on the sand level, the heads and shoulders of the Spanish soldiers who occupied the trenches could be readily outlined, and a few, who were above the trenches, appeared like children moving about in different directions. Between the two lines was a lower hill covered with a dense forest. The valley between this hill and the Spanish line was open, so that in case of a charge the Spanish would have had a great opportunity to mow down the advancing columns before they could reach their breastworks. The elevation occupied by our soldiers was clad with shrubs and forest trees on the Santiago side, all along the road as far as the valley. We left the ambulances in a protected place, and with the orderly rode slowly in the direction of our enemy. As soon as we reached open ground we were in plain sight of the Spanish guns that seemed to stare angrily in our faces, and the men on the breastworks and in the trenches were in plain view. The orderly now gave the signal with the white flag, which was replied to almost in the same moment by the Spaniards, showing that they were wide awake and closely watching the space between them and our line. Two officers came toward us and we advanced slowly to meet them. When we reached our side of a bridge, which spanned a small stream near the city limits, we were ordered to halt. We dismounted and awaited their arrival. When within proper distance we saluted and they returned the compliment in genuine military style. We explained to them the object of our visit, whereupon the formal introductions were made and we were welcomed by a hearty grasp of the hand. The officers we met were two lieutenants, well-educated and polished gentlemen. Our orderly returned to bring the ambulances to a point designated by the officers on the Spanish side of the bridge. Before the ambulances arrived, a captain, who, to judge from his appearance, had evidently seen long service, joined us. An orderly who accompanied him brought refreshments, such as could be obtained in the Spanish camp, which were enjoyed by us all. Cigarettes were freely passed around and all kinds of subjects outside of the pending war were freely discussed in the shade of a group of palm trees. About the time our ambulances arrived a surgeon with thirty hospital corps men, and the necessary amount of litters, made his appearance. On the left sleeve of the uniforms of the hospital corps men was sewed a red cross made of ordinary red flannel. The litters compared very favorably with our own. The patients were taken from the ambulances and were formally transferred to the Spanish authorities represented by the officers. The surgeon was a middle-aged man with a splendid physique, brown hair, and a beautiful, well-trimmed, flowing beard of the same color, blue eyes, and most delicate complexion; in fact, he was one of the handsomest men I have ever seen. When he ascertained my name he expressed both surprise and pleasure to have met me under existing circumstances. He recounted some of the hardships of the Spanish army in Cuba, said that the climatic influences and disease reduced the fighting force fully 50 per cent. in three months after landing, and alluded feelingly to the scanty provisions on which the army had to subsist after the siege of Santiago was commenced. Among other things, he said that the Spanish army had attempted to fight the Cubans for four years, and that the Cubans would not fight, but would maraud the country and then retreat to inaccessible jungles, but since the Americans came to Cuba they had no reason to make a similar complaint. They all seemed greatly pleased when I proposed we should meet again in Chicago after the close of the war. The animated, most friendly and cordial conversation protracted our visit until sundown, when the time had come to bid our new friends goodbye, which was done with a strange, mixed feeling, considering the circumstances which had brought us together and the nature of the environments. After shaking hands we mounted our horses, but before we had time to start were requested to dismount; the final parting included the Spanish embrace. When we were again in the saddle I turned my horse in the direction of our line, riding slowly, and never looked backward. I have no doubt that our friends from the other side returned to their headquarters with similar feelings. A decisive battle was expected the next day, and with the fortunes of war so uncertain, it seemed more than probable that some of us might not witness another such glorious sunset that lent such an exquisite charm to the parting hour. In the event of a great batte we had to expect wounded prisoners of war on both sides, perhaps followed by a repetition of a similarly impressive scene to that in which we had just participated. To me this meeting was an instructive object-lesson, demonstrating the humane side of modern warfare. Without much loss of time, and without any serious difficulties, the poor wounded prisoners were returned to their commands, their officers, their surgeons, their friends, and were again brought in communication with their own country. Officers of two opposing armies, within short distance and on the verge of a great battle, met on the most friendly terms and spent the hours of the closing day in a visit that will remain memorable to them all. The affectionate parting made strong ties of friendship between men who, on the next day, might meet again as determined foes in mortal combat. Nothing to my mind is nearer akin to the spirit of true Christianity, and nothing is a better imitation of the work of the Good Samaritan than the prompt exchange of the wounded prisoners of war. Military authorities may differ in regard to the advisability of exchanging prisoners of war, but humanity demands a speedy return of the sick and wounded. I saw many sick and wounded prisoners of war both in Greece and Turkey; all of them suffered from homesickness, although they were well cared for on both sides, and this affection, so common under such circumstances, did much in retarding recovery and in increasing the mortality.

That the Spaniards respected the humane side of warfare, there can be no longer any question, although during the war the press frequently took occasion to state the contrary. It was asserted that the Spaniards did not respect the Red Cross, and that wounded and non-combatants under the protection of the Red Cross flags were frequently fired upon. I have reason to believe, from what I saw during my service in Cuba and Porto Rico, that those reports were made without substantially reliable foundataion. It is true that physicians, litter-bearers and wounded on the stretchers, in being conveyed to the rear were killed and wounded, but such accidents will occur during any battle as long as the first-aid dressing is made, as it should be, near the firing line. In Cuba, the case of a lieutenant who was wounded in action

came under my observation; he was conveyed to the rear by the men of his own company, and on his way to the field hospital was shot twice while on the stretcher. It certainly seems more than improbable that any soldier would concentrate his fire on a man already disabled. It is more likely that the two last wounds were made by aimless bullets.

The modern small caliber weapon sends the deadly missile a distance of three miles, and injuries to non-combatants within this range are unavoidable. It must also be remembered that the small Red Cross flag used in the field can not be distinguished with the naked eye for anything like the distance traveled by the modern bullet. No gross violations of any of the articles of the Geneva Convention can be laid at the door of our vanquished enemy. Perhaps one of the best proofs that the Spaniards conducted the war on the most humane principles is to be found in what occurred during the first skirmish after the landing of our troops in Porto Rico. A small Spanish force occupied the summit of one of the foothills, and opened fire. Our troops made a charge in which one of the Pennsylvania regiments took part. A young private of this regiment, in his enthusiasm to drive the Spaniards from their position, advanced far beyond his line. The day was extremely hot, and when he came within a short distance of the brow of the hill he was overcome by the severe exertion and the intense heat and fell unconscious. A Spanish surgeon immediately rushed forward to render first aid, administered stimulants, and had him at once conveyed on a stretcher to our line. I saw this young hero a few days later, in the hospital at Ponce, rapidly recovering from his illness, proud of his military career, and full of gratitude to the one who saved his life on the battlefield. An act like this stands out as a beacon light of the humane side of warfare, and the chief actor deserves the gratitude of our nation, and is worthy of a medal of honor from the country he represented so well.

Another very pleasing evidence of the humane nature of recent warfare came to my notice at Mayaguez, Porto Rico. After a somewhat lively skirmish between our troops and the Spaniards near the suburbs of this prospering little city, the enemy retreated and the wounded from both sides were conveyed to the same hospital. I found the Spaniards on one side of the large room and the Americans on the other, and all of them were under the care of the same nursing sisters of a Spanish order, who, in their ministrations, made no distinction between friend and enemy. To them the uniform the soldier wore made no difference when their services were needed. The Red Cross flag floated over the building that had been temporarily converted into a hospital, and the inmates of both nations received the same kind and considerate treatment. It was interesting to observe how the men, who but a few days before did their utmost to kill or wound each other, were now on the most friendly terms. They exchanged little articles of comfort, such as tobacco, cigarettes, fruits and relics of the war in a manner that did not recall the experiences of a few years ago. They all felt that they had done their duty to their respective countries and now the victors and the vanquished were under the same roof, in care of the same nurses, and were making ties of friendship which, I have no doubt, in many instances will remain permanent. I would cite additional minor observations which would corroborate the above narratives from the late Spanish-American War, and which would confirm the statement that the humane side of warfare was strictly observed on both sides. I can not close without again referring to the work done by the American Red Cross Association from the beginning to the close of the war. Two ships, chartered for their special use, brought provisions, delicacies, medical supplies and articles of comfort to the coasts of Cuba and Porto Rico at a time when they were sadly needed. The nurses furnished by the Association did excellent service wherever they were sent. The people, regardless of political views or religious convictions, had confidence in the work of the Association and made liberal contributions. I am sure that every soldier who participated in the war, at home or abroad, has some pleasant recollections of its work, and a deep sense of gratitude for those who have made it what it is, the central figure, the most earnest advocate and the most powerful agent of the modern movement to bring civilized warfare on a most humane basis. Let us hope and pray that international arbitration may be instrumental in averting war whenever such a course is compatible with the mission and honor of nations, and that when war is inevitable, it may be characterized by the spirit of the age which breathes humanity, and demands the best and most considerate treatment of the sick and wounded of the belligerent armies, regardless of the uniform they wear or the flag they defend.

A PATHOLOGIC STUDY OF EIGHTY TUMORS OF THE MAMMARY GLAND, WITH SPECIAL REFERENCE TO THE OCCURRENCE OF MALIGNANCY.*

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The frequent occurrence of tumors in the mammary gland, the question of their benignancy or malignancy, and the evils which so commonly arise from the waiting policy in these cases, make requisite a knowledge of the microscopic anatomy, manner and possibilities of growth of these tumors, if a rational treatment is to be carried out. There has long been a general classification of tumors in all parts of the body as benignant and malignant. Whether such a classification is possible in neoplasms of the mammary gland is doubtful, and with this doubt I present a microscopic analysis of eighty tumors of the breast. These tumors are largely from Dr. Nancrede's clinic at the University Hospital, during the years 1892 to 1899. A few were sent to this laboratory, by physicians about the state, for diagnosis. The cases may be classified according to their histologic structure.

Fifty-six of the number warrant the diagnosis of carcinoma, the diagnosis resting on the definition of an epithelial tumor, whose cells grow loosely in the connective tissue spaces without a basement membrane, growing both by infiltration and metastasis, and therefore the most malignant of tumors.

Carcinoma Medullare.—Of these, ten are of the medullary variety, the cells being in great preponderance over the stroma. The relation of cells and stroma varies markedly in the different cases, and even in the same tumor. The cells lie in small masses with fine strands of connective tissue between them; or, the nests may be very large, the stroma largely consisting of coarse bands from which finer strands extend between the cell masses. One arrangement frequently merges into the other. An alveolar appearance is also presented, the cells having shrunk away from the enclosing bands of stroma. The

*From the Pathological Laboratory of the University of Michigan, Ann Arbor.

cells vary in size from two to several times that of a leucocyte, there being a relation between the size of the cells and the closeness with which they are packed together. They are polymorphous, the prevailing shape being round or oval. The epithelial type is always preserved, i. e., oval nuclei, granular chromatin, and large proportion of protoplasm. In every case a part of the cells show a granular, swollen protoplasm and fatty degeneration. The fat appears as small globules in the protoplasm. Four cases show a necrosed cheesy condition, and also diffused chromatin, fragmentation of nuclei and cell-bodies; that is, conditions which are the beginning of necrosis. In such cases the small cell infiltration and edema are marked about the areas of necrosis, indicating an inflammatory reaction. A few giant cells are usually present, but these do not show the nuclear division which is so frequently found in the sarcomata.

The stroma consists of a fibrous connective tissue of varying density. Although as a rule it is not the dense tissue of few nuclei found in the scirrhous variety, there are usually small islands of scirrhus present. The stroma is myxomatous in two cases, and these two are also partially necrosed. The myxomatous change probably preceded the necrosis, for in the necrotic areas are found bits of the mucoid tissue. The stroma is usually edematous. The vascular supply of these tumors consists largely of capillaries lying in the connective tissue, being in no case in contact with the cells. The vascularity is in inverse proportion to the density of the stroma. The capillaries are frequently dilated and congested. In the denser part of the stroma there are few larger vessels.

In four of the ten, remnants of the gland ducts—or adenoma—persist; and in three of them the cells can be seen to have proliferated, filling the lumina of the ducts and growing into the lymph-spaces as rods and nests. In such areas it is easy to see that the carcinoma cells are larger than the parent cells, and that the nuclei are hyperchromatic. In one case the lobular arrangement is retained, indicating that the growth had been by a general proliferation of the epithelial cells. Extension into the fat is often shown by small nests and threads of cells growing between fat cells. In such areas the carcinoma cells are frequently very small and scarcely to be distinguished from leucocytes. In the areas of proliferation and extension there is often an inflammatory infiltration and edema. Three of the ten cases present in part also the characteristics of the simplex form. These are, therefore, diagnosed carcinoma simplex et medullare.

Carcinoma Simplex.—Twenty-one cases come within the diagnosis of carcinoma simplex, the occurrence of cells and stroma in relatively equal parts being the essential characteristic. The arrangement of cells and stroma varies. The cell nests are small and the stroma is in fine strands, or the nests are large and the stroma in heavy bands. The cell nests may be round, oval, irregular or in long narrow rods. In one case the parts examined showed the latter arrangements throughout. There is frequently an alveolar arrangement in which the cells have shrunk away from the walls, thus distinguishing from alveolar sarcomata, in which the cells are always adherent to the enclosing bands of stroma. One tumor frequently shows all of these forms. Moreover, in the same tumor the type of growth may vary from medullary to scirrhous. None of these, nor any of the other cases, conforms to a fixed type. Neither from a clinical nor microscopic standpoint is there a distinct difference between the various forms. All that the names given should mean is that in a given tumor there is a preponderance of the indicated structure. As before stated, three cases were diagnosed carcinoma simplex et medullare.

The stroma consists of fibrous tissue which is soft and rich in nuclei, or dense and scar-like. In half of the cases the stroma has undergone a mucous degeneration, which in one case is so far advanced that the diagnosis of carcinoma simplex myxomatous is given. The cells have the same characteristics as in the medullary form, often showing more marked degenerative changes. In one case there is an early stage of mucous degeneration of the cell nests. The same tumor is partially necrosed. In the areas of necrosis may be found bits of the mucoid substance, which indicates that the myxomatous change preceded the necrosis. In three other cases there is necrosis, one showing calcareous deposits in the caseous areas. Around these areas there is a marked small cell infiltration.

In one case fatty degeneration of the cells, granular and swollen protoplasm, a myxomatous stroma, diffused chromatin, and necrosis indicate the steps in the retrograde process. The vascularity of these cases varies with the density of the stroma. In those tumors whose stroma is soft and rich in nuclei, there is a rich capillary supply in the strands of tissue; while in cases with a dense fibrous stroma there are but few blood-vessels. In other words, as the stroma develops from a soft to a hard tissue, the increasing density cuts off the blood-vessels, as it does in any other tissue which becomes scirrhous. In the denser parts of these tumors are found a few larger vessels with very thick, and often hyaline walls, indicating an obliterating endarteritis or phlebitis.

In one case which retains a lobular arrangement the blood-vessels are those of a normal gland, but much dilated and congested. This case also shows an invasion of the vessels by the carcinoma cells, giving the appearance of emboli. Whether it is a case of embolism, or infiltration through the vessel wall, could not be determined. In either case the malignancy is much increased by the danger of hematogenous metastasis. In nine of the twenty-two cases there is a marked small cell infiltration and edema. This is found oftenest at the advancing border, or surrounding a necrosed area. Neither of these conditions may be present. In six specimens there remain parts of the normal gland or adenoma, and in these cases may be seen a proliferation of the epithelial cells both into the lumina of the ducts and the surrounding lymph spaces. Several times the infiltration of the fat is shown, as mentioned above. In two cases the subjacent pectoral muscle shows infiltration by the cancer cells. The muscle substance is destroyed by the ingrowth, even at some distance from the actual infiltration, the muscle fibers showing atrophy, cloudy swelling and Zenker's necrosis. This suggests that there may be a toxin elaborated by the cancer, which has a poisonous effect on the surrounding tissues. In two cases the tumor has a lobular arrangement, suggesting that the growth had occurred by a diffuse proliferation of the gland cells. One typical carcinoma simplex shows tuberculous changes with epitheloid and giant-cell tubercles in the tumor mass.

Carcinoma Colloides.—Five cases, diagnosed colloid carcinoma, are characterized by a mucous degeneration of the cells, commonly accompanied by a similar degeneration in the stroma. In every one the proportion of cells and stroma is about equal, which indicates that these cases, before the mucoid changes occurred, would have presented the characteristics of carcinoma simplex. The

first case shows an early stage in the process. Many of the cell nests show no mucous change, but the other degenerations mentioned previously. Other nests show, about the borders, a change to a stringy, granular substance, while others are completely replaced by this material. Parts of the gland structure remain, and these show the development of the cancer by the cell proliferation. This case indicates the series of steps by which the colloid carcinoma is developed. The remaining four show intermediate degrees between the first case and one in which the cells have completely changed to a granular, stringy substance which stains a deep blue with hematoxylin. The stroma is also changed to a similar material of the same staining reaction. The degeneration of the cells may begin either at the periphery of a nest, or at the center. In one case the latter change had largely taken place, giving the nests a cylindric appearance. In one of these cases carcinoma-cell nests were found in several of the blood-vessels. These may be emboli. In three cases there is an inflammatory infiltration of small cells, in one necrosis of large areas.

Carcinoma Scirrhosum.—Ten cases are scirrhus, the stroma being in greater proportion than the cells. This arrangement prevails, but in each there are areas which conform to the definition of adenocarcinoma and of the medullary and simplex forms. The cells are scattered in the stroma in large or small irregular nests. The stroma consists of fibrous connective tissue of different degrees of density. It may be comparatively soft and rich in nuclei, or very hard and scar-like. The softer portions are in the newer tissue, that is, in areas of proliferation and extension. The stroma is frequently edematous. In two cases it had undergone a diffuse mucous degeneration, and these, therefore, are called myxomatous scirrhus. The cells are like those described in the other forms, showing the same retrograde changes and areas of necrosis. As before, the blood-supply is scanty in the denser tissue, while in the areas of extension may be seen capillaries lying in the cell masses, in every case surrounded by connective tissue. In three cases portions of the gland ducts, or adenoma, remain. These show proliferation of the cells into the lumina of the ducts, and also into the lymph-spaces. Five cases show invasion of the fat by the tumor cells, and in such areas the growth is medullary, from which there is seen a transition to the simplex and scirrhous types. Such cases seem to show the origin of the scirrhous type. In areas showing active infiltration of the fat the tumor cells are often very small, with hyperchromatic nuclei, and scarcely to be distinguished from leucocytes. In one of the ten there were calcareous deposits in the ducts. In two there is a marked inflammatory exudate at the advancing border.

Adenocarcinoma.—Nine tumors show the general plan of the gland, whose epithelial cells have proliferated, i. e., the cells have grown away from the basement membrane into the lumina of the ducts and lymph-spaces. Among these are ducts of which it can not be said whether they belong to adenomata or to the normal gland; while others show areas which correspond to the normal gland, and also areas in which the gland is replaced by enlarged and dilated ducts and new growth of connective tissue. These two conditions merge one into the other. The nine have, in common, an abnormal growth of the epithelial cells. In one case there is a diffuse proliferation of the cells, which have grown into the ducts without much extension into the surrounding tissue. In other cases this is not so marked, the rods of cells extending into the lymph-spaces and the formation of small nests being the striking point. Two cases have so far developed that areas of the simplex type are seen. The stroma is never of the scar-density found in the scirrhous form. In four cases the connective tissue is myxomatous. In two cases there is a marked edema. In the tumors showing the distinctly adenomatous type with an increase in the connective tissue, it is probable that the development of the carcinoma was secondary to that of an adenofibroma. One case especially shows this change. The epithelium of a distinct adenofibroma shows a malignant proliferation, and the diagnosis might properly be carcinomatous adenofibroma; one case shows the beginning of an intracanalicular growth. The cells lining the ducts in all of these cases are similar to the normal gland cells. When these cells have left the basement membrane they preserve their epithelial nature, but are as a rule larger, polymorphous, and show marked degenerative changes. The nuclei are hyperchromatic.

Carcinoma in the guise of Adenofibroma, showing atypical gland spaces, but no infiltration of the lymph spaces. (Camera lucida drawing. Leitz Oc. No. 2, Obj. No. 3.)

In those tumors whose structure is not widely different from the gland, the blood-supply is that of the normal gland, the vessels being usually congested. In one case there are small areas of hemorrhage into the tissue. In three blocks taken from one case the conditions are respectively: normal gland with no visible changes, adenofibroma with beginning epithelial cell proliferation, and carcinoma simplex. From this instance may be gained an idea of the origin of the growth, and of the different phases which one case may present. It also shows how impossible a correct clinical diagnosis of such cases is, and how dangerous a pathologic diagnosis may be when based upon a limited examination. Two of these cases are tuberculous also. Epithelioid, giant-cell,

and caseating tubercles were found in the tumor mass. In one case there is a small abscess, in the walls of which there are the histologic evidences of tuberculosis, which are verified by the finding of the bacilli, by means of the carbol-fuchsin method. The existence of the carcinomatous and tubercular processes together is important. One of these and the other case of tuberculosis mentioned have been reported by Dr. Warthin.[1]

Fibroma.—Eighteen cases are fibromata, but in none is the growth a pure fibroma, each showing some modification. There is in every instance some evidence of gland structure. The fibrous tissue varies from a soft tissue rich in cells—which have been called fibrosarcomata—to a hard one of few nuclei. A stroma of the density of scar tissue was not found. With but few exceptions the stroma shows myxomatous degeneration. The blood-supply is scanty, consisting of few thick-walled vessels in the denser parts, and small capillaries in the softer tissues. Three of the eighteen are adenofibromata, consisting of ducts more or less resembling the gland structure, and a fibrous stroma which in one case is in great preponderance, in another about equal parts, and in the third there is a larger proportion of ducts. The gland-like structures may vary from the size of mammary acini to large, irregular, dilated ducts. In one case the stroma around the ducts is richer in nuclei, which indicates the origin by pericanalicular growth. One case shows a tendency to extend blunt papillæ into the duct spaces, that is, it is the beginning of an intracanalicular fibroma. In one there is a slight malignant proliferation of the epithelial cells. Two tumors, in addition to these characteristics, show around the gland and adenoma ducts a proliferating connective tissue. This tissue becomes poorer in nuclei and denser the greater the distance from the ducts. These are, therefore, diagnosed pericanalicular adenofibromata.

Five of the eighteen show an intracanalicular growth. These tumors are characterized by blunt papillæ which grow into the dilated ducts, as a rule entirely occluding them. In three of these the structure of adenofibroma is also present, and these may be called intracanalicular adenofibromata. Calcareous deposits were found in the ducts of one. The other two show no remains of gland structure except the epithelium lining the large spaces and covering the papillæ. These are intracanalicular fibromata. As mentioned, one case of adenocarcinoma and one of adenofibroma show a beginning of this intracanalicular growth.

Eight of the fibromata are further characterized by greatly dilated ducts which form cysts of varying size. One case is simply adenocystofibroma, its structure varying only from an adenofibroma by the presence of the cysts. Four show papillæ growing into the cysts. These papillæ are slender, leaf-like outgrowths not resembling those in the intracanalicular tumors. These are papilliferous adenocystofibromata, and from their papilliferous nature are more malignant than the other forms, because of their greater tendency to become carcinomatous. The papillæ may be considered as an early stage of the atypical growth of the carcinoma which is likely to arise. One of the four merits a separate description. It is very cystic. The spaces are of many shapes and sizes, some of them being very large, filled with a mucous substance. The smaller cysts especially show the tendency to become papilliferous. The connective tissue is dense, with relatively few nuclei. Surrounding some of the larger cysts is a thin border of a hyaline deposit which stains a deep pink with eosin. The stroma is edematous and in a large part myxomatous. Around the smaller spaces the connective tissue is rich in nuclei, indicating a pericanalicular proliferation. Throughout, and especially in the smaller cysts, there is a beginning carcinomatous change. It is to be noted that the smaller cysts also show more papillæ. The proliferation of the cells is chiefly into the lumina, irregular rods growing away from the basement membrane and forming masses of cells in the spaces. The cells present marked differences from the parent-cells. They are larger and polymorphous. The protoplasm is vacuolated, granular and stringy. The nuclei are hyperchromatic. Where these changes have occurred there is a marked inflammatory infiltration. Two of the eight cystic tumors show a pericanalicular proliferation of the connective tissue, and may be called pericanalicular adenocystofibromata. One of these shows, in the adenomatous portions, carcinomatous change. The remaining one of the fibromata is, in part, typical intracanalicular adenofibroma with all degrees of growth of papillæ into the cystic spaces. In this tumor also the epithelial cells have grown away from the basement membrane. The diagnosis is carcinomatous intracanalicular adenocystofibroma.

Sarcoma.—Six cases are sarcomata, following the definition of a mesoblastic tumor with a preponderance of cells and the presence of a fine fibrillar stroma between the cells. The blood-vessels are capillaries of thin walls, a single layer of endothelial cells, and of wide lumina. They lie in direct contact with the sarcoma cells, and the blood elements are often found outside the vessels. In two cases there is marked hemorrhage into the tissue. Three of the six are polymorphous sarcomata, so-called because of the varied form and size of the cells. The greater part of the cells are round or oval, from a little larger to many times the size of a leucocyte. There are also spindle and giant cells. The nuclei are granular, taking the stain to a lesser degree than the leucocytes. Many nuclei show karyokinetic figures. The giant cells especially have fragmented and mitotic nuclei. In one case the fat is *infiltrated* and replaced by the tumor cells. In this case, at the advancing border, and in one other, there is a marked small cell infiltration. One case shows myxomatous degeneration, necrosis and caseation of the cells. One tumor contains large bands of connective tissue. These are doubtless remnants of the gland tissue. One case has an alveolar arrangement, the cells having disappeared at the center of the spaces, but adherent at the margins. The fourth case is a small round cell sarcoma, consisting largely of small round cells, with few oval, spindle and giant cells. In this tumor there is evidence of hematogenous metastasis. The tumor consists of large masses of the sarcoma structure and fibrous connective tissue, in which are small foci of round cells around or in the vicinity of the blood-vessels. A large proportion of the mass is a fibrous connective tissue which suggests that either a fibromatous change had preceded the sarcoma development, or, that it is a change from a so-called embryonic to a mature tissue. Two cases are spindle cell sarcomata, one characterized by small, and the other by large spindle cells. There are fewer giant cells in the spindle cell sarcomata than in the other forms examined. In none of the sarcomata is there any evidence of glandular structure. Sarcoma apparently does not grow between the ducts, to any extent, but destroys them in the progress of its development. Many of the older writers speak of adenosarcoma, meaning a tumor composed of adenomatous and sarcomatous structure. This error probably arose by mistaking the soft stroma sometimes

[1] Am. Jour. of the Medical Sciences, July, 1899.

found in adenofibroma, for sarcoma. The stroma of fibromata is often very rich in nuclei and the mistake would not be unnatural at a time when even carcinomata and sarcomata were often confused. The chief diagnostic point of sarcoma is the growth rather by expansion than infiltration, so that the gland ducts are destroyed early. There has never been presented in this laboratory a sarcoma of the breast which does not show destruction of the ducts, except at the periphery of the growth.

The relative occurrence of the different varieties of the eighty cases is as follows: Carcinoma, 70—carcinoma medullare, 12.5; carcinoma simplex, 27.5; carcinoma colloides, 6.25; carcinoma scirrhosum, 12.5; adenocarcinoma, 11.25—adenofibroma, 12.5; adenocystofibroma, 10; sarcoma, 7.5, and tuberculosis, 3.75 per cent. Five per cent. not classified as carcinomata show carcinomatous proliferation. The per cent. of cases of tuberculosis is higher than has previously been reported. This is doubtless due to many cases of tuberculosis being diagnosed simply as malignant, or as cysts.

Of the series, 82 per cent. show undoubted evidences of malignancy, not including the cases of tuberculosis. It will be instructive to compare these cases with others reported.

S. W. Gross reported 637 cases, of which 83.2 per cent. were carcinomatous.

Butlin reported 65 cases of cystic tumors, as follows: carcinoma, 13.8; adenoma, 1.5; sarcoma, 38.4; fibroma, 27.6; adenofibroma, 9.2; mixed connective tissue tumors, 10.7 per cent. The high proportion of sarcomata suggests that there was confusion between sarcomata and the soft fibromata: 52.5 per cent. were malignant.

Williams reported 2430 cases, as follows: cancer, 77.3; sarcoma, 3.9; myxoma, .16; fibroadenoma, 15.3; papilloma, .10; cystoma, 2.6 per cent.; 81.2 per cent. were considered malignant, including only the cases of cancer and sarcoma.

White reports 80 per cent. of mammary tumors as carcinomatous.

Senn reported 440 cases, of which 95 per cent. were malignant.

Gross quotes 481 cases of Bryant's, of which 83.16 per cent. were carcinomatous, and 440 cases of Billroth's, of which 85 per cent. were carcinomata.

With the exception of Senn's series, the number of malignant cases corresponds to mine, that is, cases in which there is good evidence of malignancy. But this series is important because it plainly shows that the idea on which the conception of malignancy has been based is not broad enough, showing as it does the relationship which exists between the various forms and the frequency with which the character changes from a so-called benign tumor to a malignant one. In the carcinomata is easily traced the development from a beginning proliferation of the epithelial cells of the normal gland acini—or adenoma ducts—through the forms of adenocarcinoma, carcinoma medullare, carcinoma simplex and scirrhus. A majority of these changes may be seen in one tumor, showing the gradual transition from one form to another, and in the study of the series the steps of the development are everywhere plainly indicated. As stated, typical adenofibroma, adenocystofibroma, papilliferous adenocystofibroma and pericanalicular adenocystofibroma were found to present carcinomatous changes. An adenocarcinoma, an adenofibroma and an adenocystofibroma show intracanalicular papillæ. An adenofibroma and an adenocystofibroma plainly show their origin by pericanalicular proliferation of the connective tissue. Considering these points there is but one opinion tenable concerning the benignancy of the mammary tumors of the types described.

Many pathologists and physicians hold that all tumors of the breast should be removed. Balloch, among them, says: "Adenomata are not the harmless growths many believe them to be as there is great probability that they may and do become carcinomatous." And Carr writes: "It seems quite probable that in all, or nearly all, cases there is at least a brief period in the development of the carcinomata, when they have neither the clinical nor microscopical appearances of malignancy, nor the tendency to return after removal. . . . We should urgently advise removal at once of every tumor of the breast, no matter how small or innocent it may appear, and invariably have it examined by a competent microscopist." Carr operated on 11 cases supposed to be benign, all of which proved to be carcinomatous; all had passed the three-year limit without recurrence. On the other hand, Johnson says: "The clinical history of cancer is usually opposed to the view that the growth began in a pre-existing simple tumor. The presence of cancer and adenoma in one breast is no evidence that the cancer in question had its origin in the adenoma." This view has no sound pathologic basis. In practically every case which presents both the picture of adenoma and carcinoma can be traced the development of the carcinoma from the adenoma, as I have described. The coexistence of cancer and adenoma is sure evidence that the cancer had its origin in the adenoma.

It is impossible, in many cases, to diagnose a malignant—in the usual sense—tumor clinically, and the microscopic examination is likely to be deceptive. It is the custom in this laboratory to examine all parts of the tumor. When a case is at once proved to be malignant, this is not necessary, but in all others every part must be examined, before a diagnosis is given. Two cases well illustrate this point. One was sent to the laboratory by Dr. Dodge, of Big Rapids, Mich. The tumor presented the picture of typical adenofibroma, yet the axillary glands were infiltrated with cancer. Atypical epithelial proliferation must have occurred in some portion of the tumor, but that area could not be discovered. In the other case only a very small area of carcinoma was found, after careful search. The axillary glands were likewise involved. A number of other cases have been examined at this laboratory, in which the mass of the new growth showed the structure of an adenofibroma, but contained small areas of typical carcinoma structure. When a case presents characteristics of adenofibroma with active proliferation—not cancerous—it can not be diagnosed benign. Such a diagnosis is obviously unsafe, for there is no certainty that such a growth will not, sooner or later, become cystic, papilliferous, carcinomatous, or change to other forms from which we have seen carcinomata may develop. It is much better to call such a tumor a malignant adenoma. Many of the German pathologists now use the term "carcinoma in the guise of adenofibroma." Hanseman, among them, says: 'The malignant adenoma is that form of carcinoma which is most similar, in its structure, to the mammary gland. At times the stroma is strongly developed, and then the picture is exactly that of fibroadenoma. It has happened that I have considered, from the microscopic examination of an excised portion, such a tumor, from a girl 22 years old, as entirely benign; and the tumor was simply enucleated. Unfortunately the pathologic picture was deceptive. In a short time there was a recidivation and the young patient died of a general carcino-

matosis. . . . Very often the stroma is exactly that of the normal mamma, and there is no small cell infiltration." The accompanying drawing is from a like case. The gland ducts show atypical proliferation, but no evidence of cancer. Nevertheless such a case must be considered malignant, for further search will doubtless show carcinoma, as it did in this instance. The designation, "carcinoma in the guise of adenofibroma," is most fitting for such cases.

Had all the cases which have heretofore been reported been diagnosed only after a microscopic examination, and the diagnosis rested on the present pathologic knowledge, the per cent. of malignant tumors would doubtless be much higher. That the proportion is so small in this series is due to the fact that the cases are largely from surgeons who believe in early removal of all tumors.

The clinical diagnosis of breast tumors is neither reliable nor important, and should not be taken as an operative guide. In a large proportion of cases it is not possible to distinguish the different forms. In nearly every case which has been diagnosed clinically, the microscopic examination has proved the diagnosis incorrect. The difficulty is obvious when the variety of pictures which one case may present is considered.

It seems justifiable to conclude from the microscopic examination only of these eighty cases, that there is no strictly benign tumor of the breast, and that the only rational treatment is complete removal as soon as discovered.

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OBSERVATIONS IN LARYNGOTOMY; TRACHEOTOMY; INTUBATIONS; BASED ON CLINICAL AND EXPERIMENTAL EVIDENCE.

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The animals were all reduced to full surgical anesthesia by ether before the experiments were begun, and were killed before recovery therefrom. Respiratory tracings were obtained by means of a rubber tambour, attached to a canvas band, encirling three-fourths of the circumference of the animal's chest. This energized a writing style attached to an organ-key mechanism. Respiratory tracings were obtained very accurately. Blood-pressure was recorded by means of a mercury manometer. The drums were revolved by a mechanism so made as to be capable of a variety of movements, ranging from one revolution in thirty minutes to eighteen per minute, so that any phase of any given tracing might be duly recorded. The following is a part of a rather extended research, which enabled us to estimate the reliable reduction with comparatively few experiments.

Surgeons have not infrequently encountered, in performing a laryngotomy, sudden collapse at the moment when the incision was made through the larynx, and the margins of this incision were kept apart for the introduction of the tube. Even death has occurred not infrequently at this time. Such results have been often encountered in hasty operations, and these latter for admitting air into the tract have usually been laryngotomies. In the history of tracheotomies, collapse or death, at the particular stage referred to above, has been rarely observed.

The experimental and clinical evidence set forth in the preceding subject includes all the principles involved in such results in laryngotomy. The larynx having been reached in the dissection, an incision is usually made boldly through it, and the margins of this incision held apart, a procedure in which there is a mechanical irritation of the dangerous area of the larynx. This area, as has been shown experimentally, occupies the middle and upper portion of the larynx. It is well, then, if a laryngotomy must be made, to bear in mind this "inhibition" area in the larynx. It would add greatly to the safety of the operation if the incision were first made through the cricothyroid space, then a swab of cocain passed through this incision and applied to the laryngeal mucosa. This having been well done, no amount of manipulation could cause any reflex phenomena. Likewise, in the introduction of the tube in the high laryngotomy, there would be almost certain interference with the inhibition area and the production of the usual symptoms. Even though artificial respirations may be supplied, it must be remembered that the heart may be inhibited as well. The cocain is an almost certain preventive of this cardiac inhibition, yet it would be safer to administer a hypodermic injection of atropin before beginning the operation.

What has been said on this subject under intubations may be said for the treatment of like conditions in this operation.

TRACHEOTOMY.

Preliminary Remarks.—I am unaware of instances of sudden collapse or death in the technique for tracheotomy due to other causes than the obstruction for which the operation was performed—that is to say, the collapse and death which occasionally followed intubation and laryngotomy do not follow the performance of tracheotomy.

Experimental.—Animals under surgical anesthesia were subjected to the following experiments: The trachea was submitted to dilatation to different degrees, ranging from gentle dilatation to a sufficient force to rupture that organ, and in not a single instance was there noted any marked change in either the respiration or the circulation. All portions of the trachea from the larynx down were tested, and in all the cases the results were similar. The only variations observed were, in some cases, an increased respiratory rhythm with an increase in the amplitude of the respirations, and in some instances there was slight increase in blood-pressure, without any alterations in the character of the cardiac action. In several instances there was a slight decline in blood-pressure. It appeared that these minor alterations in this and in the respiration were due to mechanical stimulation of sensory tissue having a direct connection with the inhibitory apparatus of either the respiratory or the cardiac apparatus. From an experimental standpoint it would seem to be impossible to produce sudden death in any such manner as it may be produced in operations involving the larynx and certain portions of the pharynx. The experiments on the trachea were made in animals on which experiments were being made for other purposes, and consequently they are not recorded separately.

Practical Applications.—The results of these experiments is of practical importance mainly in point-

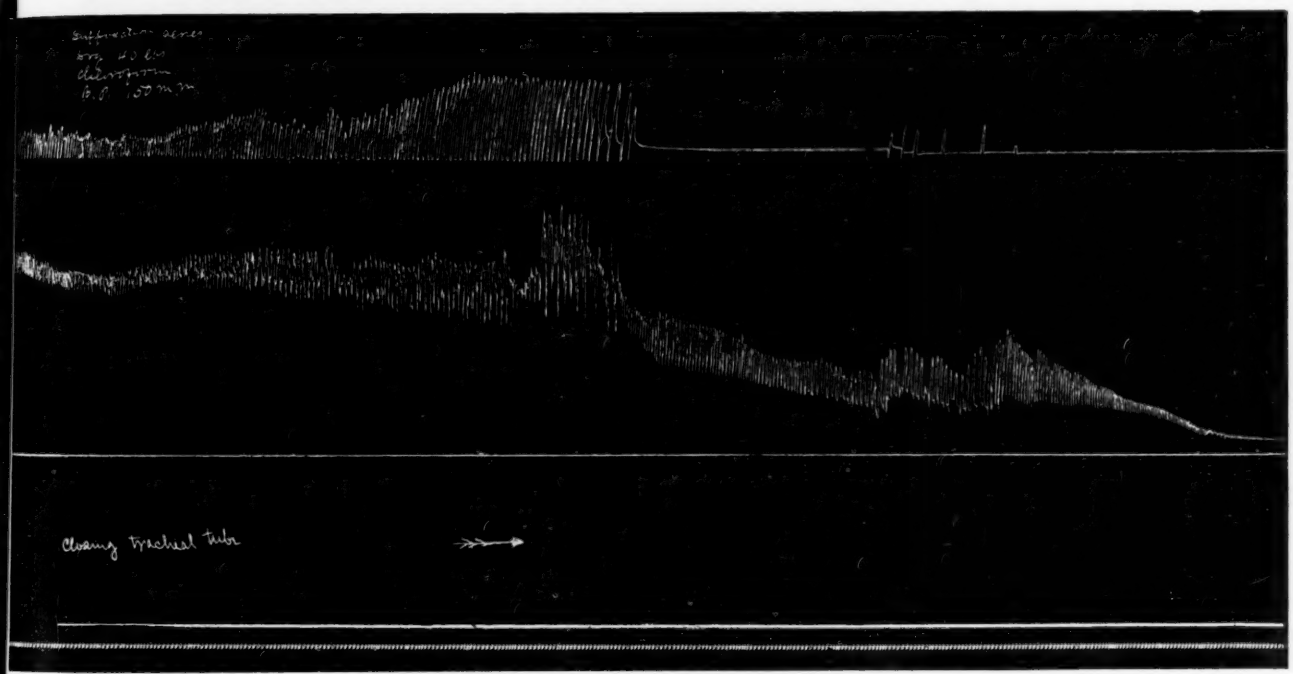
ing out the very great safety of operative procedures, so far as the immediate results are concerned, on the trachea, as compared with like operations on the larynx, that is to say, in considering the choice of tracheotomy or laryngotomy the principles involved in the two operations would be of great value in making a choice.

INTUBATIONS.

Preliminary Remarks.—In performing intubations, not infrequently causes of sudden collapse or death are encountered. These results appear with so much suddenness as to give but little time for thought or action, and it would be a matter of great interest to those who perform such operations to know by what means such results are produced. In my own experience, in a series of sixty-five intubations, there were three such sudden deaths. While different theories have been proposed in explanation, none have, so far as I am aware, been founded on any considerable experimental evidence. The results were most frequently attributed to sudden suffocation from forcing down into the air-passage detached membranes. Others have said that the cases die of collapse, which is not an explanation. It has been asserted that the deaths are due to reflex phenomena from irritation, but the method of production of these phenomena is not pointed out.

1. In a healthy fox-terrier, weight twenty pounds, under full surgical anesthesia, with the respiratory apparatus marking the blood-pressure taken in the carotid artery, and after obtaining a control tracing, the larynx was dilated in a manner as nearly as possible like that of introducing a tube for intubation. The result of the careful introduction was merely a temporary inhibition of respirations. After a few feeble respiratory efforts, whose intervals were prolonged, normal respiratory rhythm was again established. However, when the tube was dragged forward with some force, so that its lower end pushed backward against the rima of the larynx, and its upper end pressed forward against the rima glottidis, a more marked respiratory failure was produced, the carotid manometer executed long sweeping strokes, and the blood-pressure during this time fell. On continuing the manipulation for some time a fair degree of tolerance was acquired, and the foregoing phenomena appeared in but a slight degree, that is to say, the heart-strokes were a little longer and a little slower than normal, and the respirations were shorter, with a longer pause.

2. In a collie dog, weight eighteen pounds, with the same arrangements for graphic records as in the preceding, a tube was introduced into the larynx with gentleness, then an attempt was made, by exerting forcible manipulation on the exterior of the larynx, to force the tube out of the larynx into the mouth. This rude manipulation produced an arrest of respiration with a marked fall in the blood-pressure, the heart-strokes being much slower. On cessation of the manipulation, after the tube had been forced out, the respiratory and the circulatory mechanisms resumed their normal action.



The upper tracing represents respiration, the next the blood-pressure, then the base line (abscissa), finally the signal showing the time of closure of the trachea, and the time in seconds. Note the very marked increase of the respiratory action; the increase of the respiratory stroke is very marked. Just before failure the strokes become less frequent, but they remain powerful to the last, the animal bringing into play all the extraordinary muscles of respiration. Note the temporary rise in the blood-pressure, the gradual cardiac failure. The heart beats regularly and rather slowly to the last.

3. A mongrel cur, weight twenty pounds, with preliminary preparation as in the preceding case, was placed on the dog-board so as to bring his mouth into a position convenient for the introduction of the fingers into the pharynx and for tilting the epiglottis forward with gentleness. In so doing there was but little disturbance in the respiratory and the circulatory tracings. The only alteration noted was in a single partial respiratory inhibition. The heart was not at all affected. Then, allowing a good control of tracings to be made, the fingers were introduced, and with considerable roughness and force the epiglottis was dragged forward, and with it the base of the larynx and the tongue, imitating a vigorous effort to dislodge membrane or recover a tube in certain catastrophies, which occasionally attend the operation for intubation. Immediately on so manipulating the parts there was a respiratory arrest and the heart was in-

hibited, causing a staggering temporary fall in the blood-pressure and the appearance of "vagal" beats. On repeating such vigorous manipulations at short intervals, a less marked effect on each repetition was observed, until finally, when the animal had become quite exhausted, but little effect was produced.

4. With preliminary preparation as in the preceding case, the diaphragm was exposed by a median incision, and the stomach and the liver so withdrawn as to permit direct observations. The larynx was now subjected to severe manipulation by passing the finger, through an incision between the upper ring of the trachea and the cricoid, into the larynx, and making pressure between this finger so placed and the thumb on the exterior, thereby producing inhibition of the respiration and the cardiac action as before. Observations on the diaphragm during this time showed the organ to be in relaxation. The skin was so removed from the chest as to expose the muscles of respiration, and the foregoing experiment was again performed. Direct observation showed that the muscles were in a state of relaxation. No respiratory muscle was observed to be in a state of tetanic contraction. On section of both vagi the respiratory phenomena appeared as before, but the cardiac remained normal.

5. In a shepherd dog, twenty-five pounds in weight, the preliminary preparations as in the preceding case, the various phenomena were again produced by like procedures. On painting the laryngeal mucosa with 4 per cent. solution of cocain, then repeating the intralaryngeal manipulation, no inhibition of either the respiration or the heart was observed.

6. In a mongrel, weight 21½ pounds, the preparations as before, after securing control inhibitions by manipulations as in preceding experiments, 1/100 gr. of atropin was injected into the jugular vein. Almost immediately following this there was a rise in blood-pressure and the manometer strokes were shortened, indicating the loss of "vagal" influence. Then, on repeating the procedures described in the foregoing experiments, the respirations were arrested as before, but the blood-pressure remained unaffected. On severing the superior laryngeal nerves, then repeating the laryngeal manipulations, no respiratory inhibition followed.

Summary of Experimental Evidence.—These experiments show that the reflex inhibition is due to efferent impulses set up by mechanical irritation of the terminals of the superior laryngeal nerves.

CLINICAL OBSERVATIONS.

Effect on Respiration.—In almost every case of intubation there is at least a temporary inhibition of respiration in a manner and to a degree entirely comparable to that obtained by experiments on animals. The extent of this inhibition depends on the following factors: In cases in which the laryngeal mucosa is completely protected by a closely adherent membrane, reflex inhibition of respiration is observed to be the least marked. In cases in which the membranes have disappeared, and the surface is raw and subjected to much irritation, like procedures produce a more marked reflex inhibition. I have made these observations in a number of cases clinically. It need hardly be said that the extent of inhibition is also in direct ratio to the amount of mechanical irritation produced by the placing of a tube. The greater the irritation, the greater the inhibition. In a child poisoned with toxins, and with but little vitality, inhibition may not be more marked at its very onset, but recovery of the normal state does not so readily follow.

Effect on Cardiac Action.—In a number of instances in which direct observations on the pulse were made during the introduction of the tube, an inhibitory effect on the heart was occasionally observed. The cardiac inhibition is, however, not nearly so frequently observed as the respiratory, and what has been said as to the variations of the respiratory inhibition may be said equally of the cardiac.

Collapse and Death Due to Inhibition.—From the experimental and clinical evidence at hand, it is evident that collapse and death in intubation are due to the reflex inhibition of the respiration and of the heart, from mechanical stimulation of the superior laryngeal nerves in the manipulation of the tube. The onset of the symptoms is sudden. The patient at once becomes limp and lifeless, the face becomes livid, the pulse has disappeared from the wrist, respirations have ceased, and the child is dead. In cases less severe the child suddenly goes into a collapse characterized by its becoming suddenly relaxed in the midst of the struggle while the tube is being placed, the respirations ceasing, the pulse not being perceptible at the wrist. However, after a brief pause, respirations slowly resume, the pulse may be felt, weak and slow, but gradually growing stronger, and in a few minutes respiration and the cardiac action are again restored. The most marked characteristic is the absolute suddenness of the cessation of the respiratory and the cardiac action.

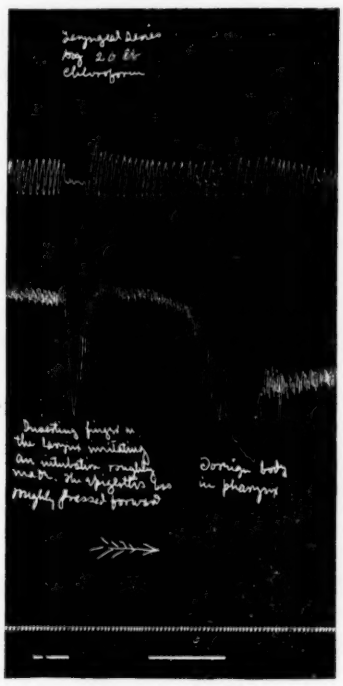
Differential Diagnosis between Obstruction from Membranes Pushed down and the Collapse from Reflex Inhibition.—In asphyxia from pushing down the membranes, the characteristic symptoms are the deep cyanosis, slow but full pulse, and continued respiratory efforts for a short time. In a case of pure asphyxia from obstruction, respiratory efforts do not suddenly cease. In collapse from reflex inhibition, the pulse disappears from the wrist, the heart-beats if at all observable are very slow and weak. In asphyxia the heart-beats grow temporarily actually stronger. In reflex inhibition death may instantly ensue. In asphyxia it can not. In asphyxia from obstructing membranes, cyanosis is much more marked than in reflex inhibition. In reflex inhibition, when very profound, there may be a sudden pallor on account of the sudden total failure of the circulation. There is an abundance of experimental evidence, and physiologists are agreed that the blood-pressure in asphyxia rises, but the heart-beats become stronger and slower, and there is clinical evidence entirely in accord with that of the experimental physiologists. The quick perception of the difference between these two conditions is of the utmost importance in the conduct of the case, as will be more fully pointed out directly.

Prevention of Collapse from Reflex Inhibition.—So far as the heart is concerned, this is done by a preliminary hypodermic injection of atropin. This drug, as is well known, paralyzes the nerve endings of the vagi in the heart, thereby protecting this organ against reflex inhibitory impulses. Or the local application of cocain on the laryngeal mucosa may prevent not only the reflex inhibition of the heart, but of the respiration as well.

Treatment of Collapse from Reflex Inhibition.—It is now my practice so to arrange the clothing of the patient, before performing the operation of intubation that ready access to the chest and the abdomen is provided, and that a towel and a basin of cold water are at hand. On the appearance of collapse the patient is inclined, head downward, and artificial respiration maintained. In the meantime the chest and abdomen are smartly

struck with a cold, wet towel. Immediately after this slapping, the surface is dried and the slapping again repeated. Cold water smartly applied to the surface of the skin is one of the most powerful respiratory stimulants, and inspiratory effort is always first brought out on such treatment. Further than this there is little to be done. There is no time for medication.

It will be at once seen how important it is to recognize the difference between collapse produced in such a manner and asphyxia from forcing down membrane. Suppose in a given case of collapse from reflex inhibition it was believed that membrane had been forced down, the tube having been placed in the larynx, hasty efforts would be immediately directed toward relieving the respiratory tract of this obstruction. Such efforts would consist naturally of an attempt hastily to remove the tube, and the efforts at relief would, by further stimulation of this inhibition area in the larynx, cause an increase in the very condition the operator was seeking to relieve. Furthermore, the blood-pressure having sunk almost to zero, the patient, instead of being inclined head downward, may be kept in the sitting posture while attempts at re-



Experiment on intubation roughly made, and foreign body in the Pharynx.—The upper tracing represents the respiration, the next the blood-pressure, and the lower two the time and the signal respectively.

lieving the obstruction are made. Finally, it is doubtful, in consideration of the extraordinary expulsive power of the respiratory apparatus, whether a membrane may be detached and so firmly lodged below a tube as to cause an obstruction after removal of the tube.

If clinicians will take a retrospect of the cases in which such an obstruction was supposed to exist, they will probably be enabled to recall no great respiratory efforts on the part of their patients. In the presence of so appalling a catastrophe, calm observations are by no means made, as a rule, and if every case was approached with the deliberate intention of making correct observations there would probably not be a mistake in confusing obstruction with reflex inhibition, and it would be found that nearly all the cases of so-called obstruction are cases of reflex inhibition. In one case occurring in my own practice, in which the child went into collapse while introducing a tube in second intubation, the patient was handed to one assistant, another kept up artificial respiration, while I made clinical observations of the phenomena. Placing my ear to its chest, I heard faint, slow heart-beats, soon becoming louder and more rapid as the child rapidly regained consciousness. This case was a repetition in its every phase, clinically, of the inhibition phenomena experimentally produced.

THE INTERDEPENDENCE OF PHYSIOLOGY AND MORPHOLOGY AND THEIR EDUCATIONAL IMPORTANCE.*

BY JAMES WEIR, JR., M.D.
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Since the great epoch-making theory of Darwin has now ceased to be merely a theory, and is accepted as a doctrine that is as clearly demonstrable as is the heliocentric doctrine of Copernicus, an early and universal entrance, by the students of our medical schools, into the study of morphology seems to be demanded.

In our public schools, in which the vast majority of our population gain their education, the scheme of life, with its multitudinous ramifications throughout the animal and vegetable kingdom, receives but scanty attention. In point of fact, beyond a slight and necessarily imperfect knowledge of the fundamental principles of physiology and anatomy, the public school graduate passes through life in absolute ignorance of his or her status in the scale of animate beings and in the economy of Nature. Not only is this true of the public school graduate, but also of the university or college alumnus or alumna unless he or she has taken special courses of study.

The text-books on physiology, anatomy, and kindred subjects, which are to be found in the curricula of our public schools and colleges, are elementary, and for the most part pseudo-scientific in scope and character; hence —owing chiefly to their condensed form, in which authors mistakenly imagine that brevity is necessarily simplification—they are not adapted to the needs of the student, and generally lead to faulty concepts on his or her part. Again, in the study of physiology, the authors of these books seem to presuppose a knowledge of morphology; for, without some acquaintance with the laws governing life in its various modifications and forms, a true concept of physiologic data, I take it, can not be acquired. A knowledge of biology implies not only an understanding and a comprehension of the functions of organs, but a knowledge also of the forms in which life is to be observed and their causes and environments; in one word, the laws which give rise to, or occasion, these forms. All through the study of physiology the student meets with morphologic references, such as the phenomena of cell life, cell growth, etc. Some of the most important discoveries in physiology are based directly on knowledge derived from morphology; for instance, the phenomena of ovulation, of digestion, and renal and hepatic elimination.

It is true, as Haeckel has already pointed out, that "the two chief divisions of biological research—morphology and physiology—have long traveled apart, taking different paths. Morphology, the science of forms, aims at a scientific understanding of organic structures, of the internal and external proportions of forms. Physiology, the science of functions, on the other hand, aims at a knowledge of the functions of organs, or, in other words, of the manifestations of life." This division or separation was wholly unnecessary, and has already done much harm. When we consider for a moment how very

dependent function is on form, and how very frequently the former is modified by the latter, we at once see that the two sciences should go hand in hand, for they are in point of fact interdependent.

Again, physiology, by neglecting the comparative method of study—which method is necessary for an accurate and comprehensive grasp of almost every science—has fallen behind, and now lingers at least a decade in the rear of morphology in point of absolute and certain knowledge. "Indeed, the direction at present taken by physiology is so one-sided that it has even neglected the recognition of the most important functions of evolution, namely, heredity and adaptation, and has left this entirely physiological task to morphologists. We owe to morphologists, and not to physiologists, nearly all that we know of heredity and adaptation."

Physiologists are beginning to recognize the fact that they are behind the times in their methods of study, and are welcoming morphologists as brother scientists without whom their own efforts would be practically *nil.* That physiology and morphology are intimately connected and interdependent, the following instance, one of a countless multitude of like ones, will easily demonstrate. The eye of a human embryo is a simple structure, having its analogue in a fixed and permanent type which is to be found in certain forms very low in the scale of animal life. In the fully developed human eye, however, we see that the organ has entirely changed its form, and that with this change of form it has acquired certain functions; therefore the evolution of the eye necessarily requires not only a study of its change of form—morphology—but also a study of its acquired functions—physiology. From a study which in the beginning was wholly morphologic, it has now become physiologic also.

Thus it will be seen that, for a comprehensive insight into the functions of any organ, we must first have some knowledge of its structure and the modifications and changes which have already taken place or which will probably take place in it; for in these days, such is our morphologic lore, in other words, our knowledge of adaptation and heredity, that we can prophesy changes and their results with some degree of success. But, even if physiology were up to date and stood side by side with morphology in point of knowledge, it would be impossible for a student—no matter how thoroughly he may be versed in physiology—who had no morphologic data, to grasp understandingly the doctrine of evolution. Why can not the student who is thoroughly conversant with the "manifestations of life" grasp the meaning of Darwin, who simply enunciated that "the chain of animal life begins in simple organism and ends in complex"? The answer is easy: he does not know the links in this chain of life, nor can he see how one link is joined to another; he is not acquainted with one of the chief divisions of biology—morphology.

I believe that I can assert without fear of contradiction, that there is not one man of any eminence in the entire scientific world who does not believe in the doctrine of evolution. Why then is it that there are so many men and women who utterly and wholly refuse even to consider this doctrine as sensible, much less true? Again, the answer is that it is mainly on account of their ignorance of biology. It has been demonstrated time and again, by eminent theologians, both in this country and abroad, that evolution is not antagonistic to the tenets of the Christian faith. The learned, scholarly, and erudite McCosh died believing in and upholding the doctrine of evolution, while several deans, canons, bishops, and one archbishop of the church of England, have been its ardent champions and supporters. Stanley, Farrar, Sanday, Cheyne, Driver, Sayce, and Robertson Smith stand by the side of Huxley and Haeckel, as far as Darwinism is concerned. We need not go abroad in search of clergymen who have dared to study facts as they were and are, and to announce their acceptance of this doctrine, and who were brave enough to undergo religious martyrdom for the sake of their beliefs. Winchell of Tennessee, Woodrow of South Carolina, and Toy of Kentucky were devoted Christians, and yet they were expelled by their churches and branded as heretics simply because they dared to believe in biologic evidence—the unerring testimony of morphology, physiology, and psychology. These men were the victims of ignorance; the people who condemned them, if they live long enough, will in the end be forced to acknowledge the correctness of the doctrine of evolution, and, coincidently, their own error. Many years ago, when Copernicus enunciated his heliocentric theory, his opponents said: "If your doctrines were true, Venus would show phases like the moon." "Yes," said he, "you are right. I know not what to say, but God is good and will in time find an answer to this objection." In 1611 the telescope of Galileo showed the phases of Venus. God had answered.

Winchell was not unmindful of those scientific martyrs, Copernicus and Galileo, when his time came. Says Andrew D. White, in his "Warfare of Science with Theology," when discussing Winchell's dismissal from the chair of theology in Vanderbilt University: "The professor was told by Bishop McTyeire that 'our people are of the opinion that your views are contrary to the plan of redemption' (as formulated by the Methodist Church, not by Christ, he might have added), and was requested to quietly resign his chair. To this the professor made the fitting reply: 'If the board of trustees have the manliness to dismiss me for cause, I prefer that they should do it. No power on earth could persuade me to resign.' 'We do not propose,' said the bishop, with quite gratuitive suggestiveness, 'to treat you as the Inquisition treated Galileo.' 'But what you propose is the same thing,' rejoined Dr. Winchell. 'It is ecclesiastical proscription for an opinion which must be settled by scientific evidence.'"

I will venture to assert that if Bishop McTyeire and his fellow-churchmen had been familiar with the history of life as it is written upon the rocky frame-work of the earth, and as it is found in the countless forms of animals and plants scattered throughout animal Nature; if he and they had grasped understandingly the problems of biologic research, their treatment of Dr. Winchell would have been entirely different. The laurel wreath, and not *anathema maranatha,* would have been his portion.

If Gladstone had been a morphologist he would not have subjected himself to the overwhelming attacks of, and decisive defeats by, that great master of biologic science, Thomas H. Huxley.

Our schools are for the education of our children. Then why allow them to pass from out these institutions in utter ignorance of the very principles of life itself? Would it not be far better policy to lay before them the scheme of life as demonstrated by biologic research than to entirely ignore this most important science, leaving them to grope in the dark when they arrive at years of maturity? I think so, for the people of the United States are demanding the right more and more, as time passes, of investigatng the problems of life and of working them out for themselves. We have no moral right

to debar the coming generation from that knowledge which is its privilege and its due. Because thousands of men and women of to-day, in their scheme of creation, prefer the mud Adam of the ignorant, half-savage Assyrians—for Moses unquestionably borrowed his "man of clay" from them—to the flesh-and-blood man of the educated Englishman, is no reason for allowing the coming generation to drift into the same absurd error. There should be no excuse for such ignorance, and yet that this lamentable lack of information concerning the scheme of life does exist there can be no question. And why does it exist? Simply because the most important of all sciences, biology, is not taught in our schools. More than once I have seen college graduates, men of wide reading and with well-trained minds, baffled by the sophistical arguments of some cross-roads wiseacre simply for the lack of a few morphologic data.

Biology—morphology, physiology, and psychology—should be taught in every school in the land. When men learn to look at life through the eyes of science, throwing aside forever the hampering influences of dogmatic theology and scholasticism, they will soon recognize error and abandon it. Medical schools especially should establish biologic chairs, from which should be enunciated the great truths of physiology, morphology, and psychology. Without a thorough knowledge of biology a physician's education is incomplete; especially is this true where there is ignorance of physiology and morphology.

ARE WE DEGENERATING? IF SO, WHY?*

BY E. STUVER, M.Sc., M.D., PH.D.

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This is a question which is being seriously discussed by sages, philosophers, statesmen, physicians and all persons interested in the welfare of the race; but to the physician, who is brought into such intimate contact with its causes and manifestations, and who by his training and opportunities is well prepared to throw a flood of light on it, to illumine its dark recesses and banish misconceptions, it should be a subject of absorbing interest.

Before we can formulate a definite opinion one way or another in this matter, we must have some standard or ideal by which to be governed in arriving at conclusions. This standard should be a broad and a comprehensive one, and should embrace not merely certain parts or phases of human progress, but should include all those elements which are necessary for the symmetric development and uplifting of the human race. Men and women should not only be attaining to greater physical, intellectual and moral perfection at the same time, but this should be true of the great majority of the individuals constituting a nation or a race. It is not enough to constitute national or racial progress, that the stream of evolution carries forward on its bosom to greater physical perfection, higher intellectual achievement and grander moral excellences, a few favored ones, if at the same time the great mass of individuals are not likewise moving forward along the same lines. If the majority of the people do not possess healthier bodies, more acute and better balanced minds and higher moral natures, it becomes a serious question, despite our achievements, to decide whether we are progressing or retrograding.

There can be no doubt of the truth that the massing of enormous populations in large cities, with the impure air and bad sanitary surroundings, and insufficient or excessive quantity or improper kinds of food, late hours and excesses of various kinds, together with the high-pressure of methods of living and the mad struggle for wealth, have done much to lower the health and vital resistance of a large part of our population. The crowded tenement houses and the sweat-shops, with all their physical evils and moral degradation, form a dark and corrupting current in the stream of our national life. And while it is true that some choice spirits in the great stream which is constantly pouring into the cities from the rural districts escape these contaminating influences, rise to high positions of honor and trust, and, by mingling with, infuse strength and vitality into the decaying city populations, still the greater number are either engulfed or ruined by the putrid stream or are soiled by its foul contact. That this great change from rural to urban life has been followed by physical degeneracy in the population of to-day as compared with our ancestors of fifty or one hundred years ago no one will deny, and unless existing evils are speedily corrected, these physical defects and moral obliquities will become more pronounced with each succeeding generation as the population becomes more aggregated in the cities.

Whether from an intellectual standpoint we are in advance of a few generations ago is a very difficult matter to decide. There can be no question that the greater attention given to the study of the objects and phenomena of Nature, which has led to so many discoveries and inventions, has greatly enlarged our mental horizon and given us a vastly more comprehensive view of the universe than was possessed by our ancestors.

The facilities for travel and the ease of communication between the most distant parts of the civilized world have placed the mental products of the whole world within easy reach of every worker. This has unquestionably led to breadth and comprehensiveness of view, but at the same time, by presenting so many distractions to the mind, has caused a plethora, a satiety, in short a mental dyspepsia, which has led to the formation of many toxins, to defective assimilation and a very imperfect nutrition of the intellectual centers.

While brightness, quickness and the superficial, showy qualities of mind have been highly developed—power of concentration and profound thought have not been correspondingly increased—indeed so intense is the competition and so strong the desire to attain an early fame or, more properly speaking, notoriety, that in order to secure this object almost any means is adopted in preference to long-continued investigation, hard work and profound thinking. Nor is it difficult to point out at least some of the causes that have led to this state of affairs. Under the conditions which prevailed fifty years ago most of the boys and girls of our country lived in the rural districts; they were brought into close contact with nature, they breathed its atmosphere and were bathed in its influences. This communion with grand and beautiful objects—the majestic mountains—the vast and solitary forests breathing a language of their own, the expansive prairies, the mighty rivers and the rippling brooks, together with the exacting conditions on which success and even existence depended, infused health and vigor into their bodies, gave time for their minds to develop in accordance with the plan impressed by Nature on the race throughout the ages, and inspired them with a strength and steadfastness of purpose which are sadly deficient at the present time. In those days boys and girls attended school, three, four or five months in the year and, even while in attendance, spent a large part of their time out of school hours in active work or out-door sports, so that there was but slight opportunity of pro-

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ducing that mental tire and satiety which are so prevalent at the present time.

The minds of the children were being evolved in accordance with the phylogenetic laws impressed on the race throughout the long distant past, and the result was mental stability, strength and endurance, as well as a dogged determination to get down to the bottom of things, even if it took years or a lifetime to do it. But how different is everything at the present time! The child probably comes into the world loaded down by inherited weakness or tendencies to disease or crime, caused by the high pressure, unnatural life, dissipations or vices of its parents.

When it gets hungry, which is in a very short time indeed, instead of being fed on the food designed by Nature for its sustenance, it is filled up with cow's milk or some manufactured nostrum; when it cries it is given brandy, paregoric or some other narcotic poison to paralyze its digestive organs and nervous system into submission, and still many wonder why indigestion is so prevalent among children and why the use of narcotic poisons is so fearfully on the increase among the people.

When scarcely out of the cradle the child is grappled by the tentacles of our educational system, and they never relax their hold until he has run the gauntlet of the kindergarten, the graded schools, high schools, coleges and universities, and emerges a finished product of this system. While much of the work throughout the whole course is illogical, and sins against the symmetrical physical, intellectual and moral development of the child, the youth and the man, still it is during the early years of childhood and youth, when the brain is unstable and easily irritated, that the greatest amount of harm is done by the stuffing, cramming processes, the almost endless examinations and the continual nervous strain and irritation which attend them. That the above statements are no mere jeremiad, but based on actual facts is conclusively shown by thousands of physical and mental wrecks caused every year by this system; bodies which under better management might have become bulwarks of our national safety, and minds that if allowed to develop in accordance with Nature's laws might have helped to advance and adorn our civilization instead of being obliged to drag out a weakened, miserable existence or to languish behind prison bars or within the walls of insane asylums.

The enormously increased percentage of the insane, as compared with the whole population, within the last twenty or thirty years, is very strong proof that mental stability at least is not increasing.

The American home has always been the upbuilder of physical health and integrity, the conservator of mental strength and power and the preserver of moral rectitude and purity. The sanctity and influence of the home have always been among the strongest bulwarks against physical evils, the greatest safeguards against moral delinquencies and a powerful protection against mental dissipation, and it naturally follows that anything which tends to lessen the influence exerted by the home upon the people must have a demoralizing effect. No one will deny that the home has lost much of the power which it once exerted over the people. Its sanctity has been invaded and its members have been drawn into clubs, societies, secret organizations, etc., which, if not positively injurious, at least do not possess the strengthening, tranquillizing and uplifting influences of the home.

While it may be claimed that the diffusion of education is so general that it is becoming a rare thing to find people who are not able to read and write, it is also true that crime is on the increase and that this increase is not confined to the illiterate but includes many with a good, nay, even a superior, education.

The intellectual faculties have been cultivated at the expense of the moral nature, and the result is an asymmetric development—a social pariah, a degenerate.

We are wont to boast about our progress, our liberty and our freedom, but I fear that we forget that the most rapid and brilliant results are not always a sure criterion of the most enduring advancement, that liberty may not mean physical, intellectual and moral disenthralment, but license leading to the most abject slavery, and that freedom, instead of breathing forth a spirit that ennobles and uplifts mankind to a higher and better plane, may exhale a mephitic poison which degrades and besots all who come within the range of its baleful influence.

No better illustration of the abuse of this so-called freedom can be cited than the material appearing in our modern newspapers. Their columns are not only filled with falsehood and misrepresentation, but reek with sensationalism and vileness which make them unfit for decent homes. They bristle with advertisements of vile nostrums, which not only defraud and swindle the unwary and ignorant but carry death and devastation in their trail. In one column appears a panegyric on the elevating influence of the press, and in another the notice of an abortifacient remedy which carries death in its wake and makes virtual murderers of the people who use it, and if justice and right were done would make the newspapers accomplices in the transaction. In another place can be seen the report of an eloquent sermon, accompanied in a nearby column by the heartrending appeal of some scoundrel and fakir to the real or imaginary victims—principally the latter—of youthful indiscretions or lost manhood. And still we are told that the newspapers are the great educators of the people!

If guiding youthful minds into sensationalism and vice, if acquainting them with and showing them how to commit crime, if giving assistance to the vilest frauds and swindles and helping them to plunder a credulous and ignorant public, if these and many other similar things for which the newspapers are directly responsible, are high and noble, then truly they are performing their mission in a highly successful manner.

The spread of venereal diseases, tuberculosis and carcinoma, together with the widespread use of stimulants and narcotic poisons, has done much to taint the blood and lower the vital resistance of the people, so that it is doubtful whether much of the progress made in sanitary science and the stamping out of contagious and infectious diseases has not been counterbalanced by a lowered general vitality.

It is true that owing to these advances and the enormous increase in the number of hospitals and charitable institutions the death-rate among children and the dependent classes of all ages has been greatly reduced, and along with this reduction the general death-rate has been greatly lowered, but the fact nevertheless remains that an immense number of weaklings have been saved to transmit their defects to coming generations and still further lower the general health and vital resistance.

As all very well know, Nature is inexorable and no respecter of persons or position in life, and by a process of natural selection she weeds out the weak and preserves the strong; still, so thoughtless, careless or ignorant are most people on this important matter, and so easily and widely can physical evils and crime be disseminated, that no opportunity should be lost in directing attention to the question. Men who exercise the greatest care in

selecting the best stock for breeding horses, cattle, sheep, dogs or even hogs, give scarcely a thought, save in some instances a mercenary one, to the life partners of their sons and daughters, and permit their grandchildren to come into the world loaded down with a burden of disease and a tendency to vice and crime which they might have prevented.

I do not wish to be regarded as a pessimist, because I believe that evolution is carrying mankind forward to a higher and nobler destiny, but whether we as a nation shall participate in that grand future or, by lapsing into the vices and mistakes of the great nations of the past, follow their downward course to ruin or extinction; whether we, in adopting the corruption, profligacy and crimes of Greece and Rome, shall follow Greece and Rome to degeneracy and extinction, will largely depend on our disposition and ability to stem the adverse tendencies which are sapping our physical vigor, undermining our mental strength and debasing our moral nature. If we would avert the fate of Rome, we must avoid the evils that led to Rome's downfall.

NOTES ON FRACTURES OF THE LONG BONES WITHOUT DEFORMITY. THE SUBPERIOSTEAL TYPE OF FRACTURE IN THE YOUNG.*

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NEW YORK CITY.

That fractures of the long bones often occur without deformity, and indeed without many of the usual signs of fracture, is well known; still the absence of the usual signs may lead to the overlooking of the principal lesion at the first examination, and when this has happened, the subsequent condition may be quite disastrous to the attending physician at the second examination. A study of the clinical features of simple fractures, combined with the findings of the operator, should enable the careful observer to make a rather accurate diagnosis in most of the bone lesions brought to his attention.

Fractures without deformity may occur in the long bones at any age, but in adults these fractures are easily displaced and give the usual signs on examination. In children, loss of continuity without deformity has been noted in cases of epiphyseal separation, where there has been spontaneous reduction, or where the force has not been sufficient to produce displacement, yet mobility has been found on examination. We have also noted many cases of simple complete fracture in the young, where the fragments were in accurate apposition, but where the usual signs, including displacement, were elicited on manipulation. It is not these cases which I intend to consider here, but a type of fracture occurring in children and young people where there is no tendency toward displacement, which, on examination, presents certain features which I think entitle it to be considered by itself, and which we regard and shall speak of as the subperiosteal fracture. On the fracture service at the Roosevelt Hospital Dispensary, we have recorded a number of cases in children, all of which presented the same signs and symptoms as regards the existence of fracture, and which I feel justified in placing in this category.

It has been stated that fractures are accompanied by rupture of the periosteum. In adult life this is generally true, but in the young we have several types where the periosteum is more or less intact. In fact, the forms of incomplete fracture noted are accompanied at most by only partial rupture of the periosteum, and in the subperiosteal type the injury to periosteum is slight. Such a fracture occurring after a trauma, slight or of moderate severity, without deformity, may be overlooked where one's suspicions are not aroused, or by a hasty or superficial examination.

One of the earliest cases noted came before me at the Roosevelt Hospital Dispensary. A child, 15 months old, fell from a cot and suffered a contusion about the hips and thigh. Taken at once to a neighboring physician, it was regarded as a simple contusion and lotions prescribed. The next morning the child was brought to us and a careful examination revealed a fracture of the upper third of the femur. No displacement, crepitus, nor edema was present, and not much pain, but on gentle manipulation a hinge-like motion demonstrated the bony lesion. There was no tendency toward displacement, and as the body showed certain signs of rickets, it was evident in this case that a thickened periosteum extended over the break which, combined with muscular fixation and superimposed fat, rendered the case somewhat obscure.

My observations on rhachitic subjects, made since 1894, at the New York Post-Graduate Hospital, may be of some interest. In certain cases of bow-legs, where the deformity was of such a nature as to require the removal of a wedge from the tibia, after such a removal, instead of chiseling the fibula, I have forcibly straightened the leg after the manner of *a brisement forcé,* and after full correction the condition of the fibula was noted. In no case was the periosteum completely torn, nor was there any tendency toward displacement at the site of fracture; in fact, these cases were typical, subperiosteal fractures of the fibula produced artificially.

These cases are brought to us by the parents or friends, with a history of slight or moderate trauma, as a rule. If recent, edema is absent or slight and ecchymosis usually absent. Where only one bone is the seat of this particular lesion, as in the forearm, we must look for it, in order to discover it, and the only safe rule is to look for this sort of fracture in every trauma to the limbs, no matter how slight. These fractures have been overlooked where a fairly careful examination for bone lesion has been made, and our manipulations must be of a particular kind as well as exceedingly gentle to demonstrate them, and at the same time not damage the parts. My method is as follows: The bone to be examined is held in one hand, at the middle third, while the lower end is grasped and an attempt made to gently sway it back and forth. If a subperiosteal fracture be present, a hinge-like motion is appreciated at some portion of the shaft under examination. During such manipulation no crepitus is elicited. There is no tendency to overriding, and pain is absent or slight. The entire shaft is examined after this manner. The bone should never be grasped and an attempt made to forcibly rub the fragments of a supposed fracture together.

The chief features based on the cases which have come before me are as follows: 1. Trauma, often slight or of moderate severity, is usually from direct violence. 2. Pain may be absent or slight, seldom severe. 3. Deformity is absent; exceptionally there is slight sagging, as where both bones of the forearm are involved, never any overriding. 4. The function usually has but slight impairment, seldom complete loss. 5. Crepitus is always

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absent. In connection with the above the examination will show a hinge-like motion at the site of the lesion, which is typical of these fractures.

A simple yet complete classification of fractures is of value both to the student and teacher, and by reference to the following table we see just where this type of fracture belongs. This table is based on the fractures treated by us at the Roosevelt Hospital Dispensary during five years ended Sept. 1, 1898, aggregating 1029 cases, of which 841 were fractures of the long bones, and of these 423 occurred in patients under 16 years of age.

- Fractures.
  - Simple, 423.
    - Complete, 353.
    - Incomplete, 70.
      - Greenstick, 57.
      - Sub-periostal, 13.
  - Compound.

When we bear in mind that these are hospital statistics, I feel I am justified in stating that the subperiosteal fracture occurs more frequently than indicated by this table. Many of our fracture cases, and this is especially true of the obscure ones, have been subjected to harsh and unnecessary manipulation before they reach us, and in this way cases have been converted from the subperiosteal type into the simple complete fracture.

It will be of interest to compare the subperiosteal fracture with the simple complete one, which I have done in the following table.

	Subperiosteal.	Simple complete fracture.
1. Trauma.	Usually not severe. Direct.	More severe. Direct or indirect.
2. Pain.	Absent or slight.	Marked. Often severe.
3. Function.	May be only slight impairment.	Usually marked loss, often complete.
4. Deformity.	Usually none.	Present or easily produced.
5. Edema.	Slight or absent.	May be marked.
6. Ecchymosis.	Usually absent.	Often present.
7. Crepitus.	Absent.	Present.
8. Mobility.	Hinge-like motion.	Complete.

At one time I was of the opinion that in the younger children we were more apt to have subperiosteal fractures, while in older ones the green-stick variety would preponderate, taking into consideration all incomplete fractures brought to us, but this opinion was probably due to the greater liability of subperiosteal fractures occurring in rhachitic bones before the stage of sclerosis.

I think it may be said that a "false diagnosis," or rather a lack of appreciation of the true state of affairs, is more often due to the neglect of a systematic examination than any other factor, and this is certainly true as regards the recognition of the subperiosteal fracture. As a rule in these injuries, the parts are favorable for a complete examination, but this must be systematic, the manipulations must be made in the proper manner and with due gentleness, and the anatomy of these fractures must be borne in mind.

Where these cases are overlooked they will develop undue pain and possibly excess of callus formation, with some angular deformity later on, due to sagging at the point of fracture. In fact, we have had cases brought to us where the first sign noted by the parents has been either bony thickening, or a slight angular deformity, and many of these were undoubtedly subperiosteal fractures following a slight trauma, and not recognized or treated. I can bring to mind several cases where children have received injuries, have concealed their existence from their parents, and where later a slight angular deformity followed. In each case loss of function was absent or trifling.

As regards treatment, simple fixation has been practiced, either by means of lateral splints, the starch dressing, or the plaster-of-Paris cast. In my hospital cases I have continued the fixation for four weeks, as a rule, though I am satisfied that in many cases repair has occurred somewhat sooner. The amount of provisional callus thrown out is always less than in the complete fracture, and in some cases it has been impossible to detect callus formation during the process of repair.

Various forms of incomplete fractures have been recorded and described. Some of these are frequent, have certain anatomic features, and may be recognized by certain clinical symptoms. Others occur more rarely, may be due to some peculiar combination of force, attitude, and constitutional dyscrasia, and do not give rise to any diagnostic group of clinical symptoms. Of the simple incomplete fractures of the long bones in the young, we have two principal types, the green-stick and the subperiosteal.

CONCLUSIONS.

Subperiosteal fractures usually present certain typical symptoms, and we should be able to recognize these lesions and differentiate them from the complete fractures.

Their union is characterized by the formation of a slight amount of callus, and solid union takes place in considerably less time than in the complete fracture.

In every contusion to the limbs, in the young, no matter how slight, a systematic search should be made for this particular lesion.

In rickets there is a greater liability toward the occurrence of incomplete fracture, and especial liability during the stage of softening for the production of the subperiosteal fracture.

Many cases of subperiosteal fracture are undoubtedly converted into simple fracture through improper manipulation or by too forcible examination.

In submitting these preliminary observations I wish to express my appreciation of the many courtesies extended to me by Dr. Alexander B. Johnson and Dr. John McGaw Woodbury.

ALBUMINURIA; ITS PROGNOSTIC VALUE IN CHRONIC NEPHRITIS.*

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The mass of evidence which has come to us of late, from the autopsy table, shows conclusively that chronic nephritis exists and is an unrecognized cause of death in a proportion of cases far beyond ordinary belief, and the comparison of carefully kept records of cases before death with autopsy findings shows that little reliance can be placed on the mere urinary examination, either positive or negative, as a means of absolute diagnosis or prognosis of Bright's disease. It will be the purpose of these notes to show that the result of the ordinary examinations of the urine, either in our offices or laboratories, are of little if any value in very many cases, from a diagnostic or prognostic standpoint, and that we are forced upon the very varied and numerous clinical manifestations and the absolute toxicity of the urine as offering the best and safest means of diagnosis.

That chronic insterstitial nephritis can exist without albumin, without casts and without uremic symptoms is beyond question; and that such conditions do exist and are brought out only at the autopsy is not an unusual circumstance and, further, that albumin of measurable quantity, casts, either of a hyaline or granular variety or both, can exist and the health of the individual be unimpaired throughout many years is the experience

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of the writer. "Formerly—a single observation of albumin in the urine meant albuminuria; albuminuria meant disease of the kidney; disease of the kidney meant, in a great majority of the cases, chronic Bright's disease; Bright's disease meant steady progress toward a more or less remote fatality; interrupted at times by various accidents which would still more accelerate it."[1] In this both the premises and the logic are in error and are in general as untrue as would be the opposite statement that chronic Bright's disease is never attended with albuminuria, or that albuminuria never meant nephritis. My experience leads me to believe: 1. That Bright's disease may exist without the ordinary urinary manifestations, viz.: albumin or casts. 2. That positive urinary indications, viz.: albumin and casts, may be found in the normal urine and hence do not necessarily mean Bright's disease. 3. That, given a case of chronic Bright's disease attended with albuminuria, the fact of its presence, its constancy or its amount has absolutely no prognostic significance.

1. As to Bright's disease without urinary manifestations, there can be no question to-day that it may begin, run a more or less lengthy course and terminate fatally without at any period showing other urinary symptoms than continued, low specific gravity or frequent micturition, and cases also occur which at one period of their course have both albumin and casts, but in which these disappear and the patient has comfortable health throughout an indefinite number of years. Austin Flint, as early as 1886, says:[2] "the small granular kidney may sometimes secrete urine which in no way differs from normal," and quotes Bartel as mentioning a case in which albumin was absent throughout the whole course of the disease. He says, further, "that casts may be likewise absent." Saundby,[3] in 1889, said: "We should absolutely give up the idea still current in practice that albuminuria must always coexist with nephritis," and Cheberly,[4] speaking of the symptom albuminuria, says: "Often the only symptom of Bright's disease, it may be entirely wanting in a pronounced case and its intensity varies without direct reference to the degree of renal alteration." Coquet,[5] in a thesis on the same subject, divides the cases into three classes: 1. Those from which the symptom—albuminuria—is absent but a portion of the time. 2. Those from which it is absent all the time. Anders,[6] speaking of interstitial nephritis, says: "The existence of this condition may be unknown, as frequently happens when the post-mortem examination shows the characteristic kidney in one who, during life has no symptoms indicating renal disease." Stewart[7] writes: "There is a non-albuminuric nephritis exclusive of cases of typical fibroid kidney. In this form of nephritis albuminuria may be completely absent while signs of renal insufficiency and even uremia may appear." Fienga,[8] Denby,[9] Brandyth Symonds[10] bear witness to the same thing, and E. R. Edwards[11] also writes: "I am certain we overlook both acute and chronic nephritis in regarding albuminuria as a certain or constant symptom. Nephritis without albuminuria certainly exists." Qurirolo,[12] Lecorche,[13] Talamon[14] and Lancereaux each report many cases and agree with D. D. Stewart,[15] who says that he believes that albumin may be constantly absent and casts be detected only after much search if at all, and states frankly the conviction which he feels regarding his own experiences that he has overlooked many cases of nephritis without albumin. In summing up his article, Edwards makes this pertinent remark: "Hence as we fear instinctively, as it were, the existence of nephritis before we examine the urine, so we may still fear its existence after negative urinalysis," and he also says that casts should be searched for, as they are more constantly found than albumin, but are not invariable in nephritis.

This is also the experience of the writer. In my last twenty cases, all in private practice, where the diagnosis of nephritis was made, two only are of interest in this connection. In one, A. G. (Case 12), there was neither albumin nor casts at any time, the diagnosis being made on the edema and uremia, and in the other, A. T. (Case 10), albumin was found in one-third of all examinations, seventy-five in number, extending over approximately three months. In two only of the twenty cases could autopsies be secured, one, A. G., who had presented only negative uranalysis, and yet the pathologic condition of the kidney was unquestionable.

2. Positive urinary indications, viz., albumin and casts, may be found in the normal urine, and hence do not necessarily mean Bright's disease. By means of the recent and more exact methods of uranalysis, it is made possible to show a much smaller amount of all the elements of the urine than formerly. This is particularly true of albumin and casts until to-day quantities of the former amounting to only 1 in 300,000 can be detected and approximately measured, and casts found with comparative ease where formerly none were believed to exist. I shall attempt to show, largely by reference, that not only albumin but casts occur in the normal urine—that is, if we accept as normal the urine passed by indviduals in whom it is impossible to detect anything but perfect health and strength and harmony of physiology at the time, and whose physical condition remains unimpaired throughout many years. It is not my purpose at this time to go far into the so-called "functional" or physiologic albuminurias. That albumin, both constant and intermittent, may occur in an individual and not be renal in its origin, or if supposedly renal be consistent with perfect health and longevity, will in this day hardly be questioned. The writer has at present no less than seven cases under observation, of healthful individuals in whom albumin has existed for from two to nine years, notably one of a man about 60 years old, in whose urine, twenty years ago, was detected a considerable quantity of albumin which still exists. He is hale, hearty, and with but slight arteriosclerosis. Saunby,[16] as early as 1889, answered the question: "Does albuminuria occur in healthy persons?" in the affirmative, and based his reply on the examinations of 461 cases of supposedly healthy individuals, in 118 of whom he found albumin.

Senator,[18] of Berlin, holds that urine is a product of transudation and normally contains a certain amount of albumin, as do all transudation fluids, and that the normal amount of albumin in the urine may be increased without fault in the kidneys to the production of so-called physiologic albuminuria. The writer agrees with Richardson[19] (London), who says: "It seems now to be accepted that there is a form of albuminuria in which there is no renal disease whatever, nor actual organic disease of any organ of the body, but a physiological state during which albumin passes by the urine as if the act were natural and dependent upon some simple physiological changes." The significance of the presence of casts underwent similar changes as to opinions, to that of albumin, in estimated importance, and for similar reasons, until recent writers—Haines and Skinner[22]—claimed that by their method of careful search casts might be found in samples of urine even from persons in perfect health. If, then, we accept this as true, and allow also the statement and later statistics of Shattock

and Mitchell, showing that they have found casts for years in healthful individuals, we must be impressed with the idea that little significance can be attached to them. In concluding this section, let me refer to one writer, Edwards (q. v.), who says: "Our conception has been broadened concerning the significance of casts, especially hyaline, now regarded as occurring in urine otherwise normal," and to Symonds,[23] who speaks of casts of "functional origin," or as I would prefer to call them, *physiologic casts.*

3. Given a case of chronic Bright's disease attended with albuminuria, the fact of its presence or its constancy or its amount has absolutely no prognostic significance. For some time it has been the personal opinion of the writer, based on the observations of something over one hundred cases, that the amount of destruction in the renal parenchyma is, in chronic nephritis, a measure of the prognosis, but that the amount of albumin in the urine is in no sense indicative of such destruction, and, further, that we to-day have nothing, unless it be the absolute toxicity of the urine or the degree and character of the albuminuric retinitis, that at all serves as a measure of this destruction. Albumin may simply indicate a lesion of the glomerular filtering membrane, nothing else, and to form an idea of its profundity, extent, or gravity, other sources of information are to be searched. Lecorche and Talamon (l. c.), in speaking on this point, say: "It is impossible to attach any prognostic value direct or remote to this condition, as the percentage of albumin in the urine is not proportionate to the degree of renal lesion." In a recent address before the Academy of Medicine, Paris, Semola[25] expressed himself as follows: "There can be no exact relation of cause or effect between the severity of the renal lesion and the degree of albumin excreted, and one can influence the latter only by the state of the blood, albumins without any reference to the condition of the kidneys." Mesnard[26] writes: "The intensity and character of this condition (albuminuria) are without value to indicate the degree of pathological changes in the kidneys or the imminence of the grave occurrences common in Bright's disease." That a fatal issue in Bright's disease may be forestalled in some and the prognosis as to time materially modified in almost all cases, is beyond question, for those are not uncommon where the individual life has been prolonged fifteen, twenty, or even thirty years under the influences of judicious medication and dietary.

It would seem, from what has been written, that Bright's disease might be difficult of diagnosis, and I believe it is more often overlooked than any other common disease. Insidious in its approach, indefinite in its manifestations, and far-reaching in its effect, it often baffles the most acute of diagnosticians until one realizes the full force of what was written by Edes, who says: "If in such a case as is reported by Edwards, nephritis is *suspected* when there are no suggestive cardio-vascular findings, no albumin, no casts, no decrease in total solids, specific gravity or quantity, no edema mentioned, and the possible diagnosis is confirmed by autopsy, we can only congratulate the physicians on their acuteness and feel that when a diseased organ presents absolutely no symptoms of abnormality in its products and no evidence —except so very indefinite one as nausea—of impaired functions, nobody but a clairvoyant can be blamed for overlooking it."

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SIMPLE AND ETHEREAL SULPHATES.

A SIMPLE AND RAPID METHOD FOR THEIR SEPARATE DETERMINATION—THIRTY MINUTES.

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The clinical value of the estimation of the proportion of the ethereal to the simple sulphates in the urine is an indication of the extent of intestinal putrefaction from the most common forms of intestinal organisms and the consequent associated formation of intestinal toxins is very great. The importance of the estimation of the ethereal sulphates is based on the fact that they are the result of a combination of the simple sulphates of the urine with certain aromatic principles, the products of bacterial action in the intestinal tract. The principal compounds of this class of aromatic substances are phenol, indol, skatol, cresol, and pyrocatechin. Most of these substances are, so far as we know, the exclusive result of bacterial action, which may occur anywhere in the organism, as in an abscess cavity, but which as a matter of fact nearly always occurs in the intestinal canal. The quantity of ethereal sulphates, otherwise known as conjugate, aromatic, or combined sulphates, or ester compounds therefore becomes in large measure an index of the intensity of bacterial processes. These substances may have, some of them, considerable importance on account of their own toxic properties, but are perhaps more important as indicators of a process which would have associated with them other substances more toxic than these, but not so far as we know responsive to any chemical test after their elimination through the kidneys. It is perfectly well understood that there may be other toxic processes in the intestines which do not produce aromatic substances and would not therefore lead to an increase of ethereal sulphates; the absence or normal amount of the latter has not thus the same clinical importance as an excess.

It is the more unfortunate, therefore, that the methods in vogue are so cumbersome and time-consuming as to preclude their use in ordinary routine clinical work. My first attempt at a practical solution of the question in my private clinical laboratory was with the ordinary titration method. This is intolerably slow, owing to the fact that after each addition of barium solution the specimen under examination ought to be boiled in order to insure the combination of the sulphates with the barium, and then allowed to settle before the further addition of

the latter solution. This settling process, which is recommended by Purdy[1] is very tedious, owing to the finely divided state of the barium salt, aided perhaps by the proteid matter of the urine with which it sometimes appears to form a sort of gelatinous mixture. The method hereinafter described is, as I think can be easily shown, more accurate than some of those described in the text-book, while it consumes much less time. For instance, Novy[2] adds .2 c.c. at a time of a solution of barium chlorid, 1 c.c. of which is equal to 10 mg. of SO_3; this is equal to .4 c.c. of the solution used in my method, and the possible error is therefore four times as great; and could possibly be considerably more than this as he does not advise getting the amounts of barium solution on each side of the end reaction and taking the mean between them, as I do, which reduces the possible error by nearly one-half. The wide limit of possible error in some of the methods would seem to justify the assertion of Long[3] that "We have no volumetric method accurate enough for these determinations." Von Jaksch[4] does not mention a volumetric method for the estimation of sulphates at all. Finding the ordinary titration method too tedious for practical work I then resorted to the gravimetric, which is absolutely correct, providing every technical detail is carried out with perfect accuracy. When this is done, however, this method, like the last mentioned, consumes altogether too much time to be available for routine clinical work.

METHOD.

To obviate these difficulties and get approximate results sufficiently accurate for all clinical purposes, it occurred to me that a modified titration method with a series of test-tubes containing definite quantities of urine and graduated amounts of barium, all of which could be boiled together, and the end reaction sought in each, would be available; the following method, worked out with the aid of my assistant, Dr. B. W. Rhamy, by means of which both the fixed and ethereal sulphates can be estimated in about thirty minutes, the actual time of work being about ten minutes, has been the result.

The apparatus required comprises: one dozen five-inch test-tubes in two series, each labeled 1 to 6; one wire rack in which the test-tubes and contents can be boiled; watch crystals; filter paper—3 inch circles; three small funnels in filtering rack—convenient but not essential; small nipple pipette; one 5-c.c. volumetric pipette—*absolutely essential* in measuring the urine; one 1-c.c. volumetric pipette graduated in 100 cubic c.mm.; a dark background on a table on which watch crystals can be placed in good light; barium solution, 15.25 BaCl in 1000, 1 c.c.=5 mg. of SO_3; hydrocholoric acid (C.P.); acetic acid(C. P.).

The total quantity of urine required is 120 c.c.—about 4 oz. In each of the twelve test-tubes place 5 c.c. of urine accurately measured with the volumetric pipette. To each one of the first set of the tubes, designed for the estimation of the simple sulphates add 0.5 c.c. of acetic acid; then to the tubes, in their serial order, beginning with No. 1, respectively, add 0.5, 1.5, 2.5, and 3 c.c. of the BaCl solution. To each of the other set of tubes designed for the estimation of the total sulphates—including both the simple and conjugate—add 0.5 c.c. of HCl; and then to each of the numbered tubes the same quantity of BaCl solution as in the first set. The rack containing the twelve tubes is then placed in a water-bath and vigorously boiled for ten minutes, which insures the combination of all the simple sulphates with the barium in the tubes containing the acetic acid, and likewise the combination of the barium with the total sulphates in the tubes containing the HCl. A little of the fluid is now taken from a tube in the middle of the series, say of Set No. 1, with a nipple pipette, and a few drops filtered in a watch crystal and a little of the barium solution added. If there is no reaction, after a few seconds, it shows an excess of barium in that tube, and all the tubes in that set containing more barium than this one are ignored and the next lowest one taken, which may chance to give a barium reaction, and this at once indicates that the quantity of simple sulphates in the 5 c.c. of urine is between the amounts represented respectively by the quantity of the barium added to each of the tubes just tested. It is a very simple and expeditious matter to work in either direction with the tubes, until we get the two limits of possible range of sulphates which are noted, and the second set of tubes containing the HCl is treated in exactly the same manner, excepting that we will certainly know to begin with that the quantity of sulphates is somewhat greater than in the first set of tubes, and probably not more than two filtrations and qualitative tests will be necessary in order to find the limits of range of the total sulphates.

As stated above, each cubic centimeter of the barium solution corresponds to 5 mg. of SO_3. Supposing, for instance, that the barium gave no reaction in the tube to which 1.5 of the BaCl had been added, but did give it in the tube to which 1 had been added. By a simple calculation we would know that the quantity of SO_3 contained in 5 c.c. of urine is more than 5 mg. and less than 7.5 mg. These calculations are very simple and can be made in an instant.

The tubes are now emptied and refilled with 5 c.c. of urine again—*and more important than in the preliminary test—accurately measured with the volumetric pipette,* the acetic acid and HCl again added precisely the same as in the preliminary test. The quantity of barium solution to be added, however, will depend on the results of the first titration. In the case above supposed, in which the barium reaction was obtained in the filtrate from the tube to which 1 c.c. has been added, and none in the tube to which 1.5 c.c. had been added, the quantity of barium solution would be graduated through the six tubes in quantities between 1 and 1.5, by means of the 1 c.c. volumetric pipette graduated in 100 millimeters. In this instance we would add 1, 1.1, 1.2, 1.3, 1.4, 1.5 c.c. of the barium solution respectively. The other set of tubes would be started in a similar manner, varying the BaCl in .1 c.c. or 100 c.mm. amount, but in quantities indicated by the preliminary test.

Again the tubes are placed in the rack, put in a hot water bath and boiled for ten minutes, and again tested as before. Suppose now that there is no barium reaction with the filtrate from the tube to which 1.3 c.c. of the barium solution had been added, but that there is in the one to which 1.2 c.c. was added; it would follow, by a simple calculation, that the quantity of SO_3 in 5 c.c. of urine must be more than 6 mg. and less than 6.5 mg. We now take the mean of these two quantities, which would be 6.25 mg., as the approximate quantity of SO_3 present in the 5 c.c. of urine. Supposing there has been 1000 c.c. voided in the twenty-four hours, multiplying this by 200—the quotient of 1000 divided by 5—gives us 1.25 grams as the quantity of simple sulphates present in the urine in twenty-four hours. We know with absolute certainty, assuming that the error of measurement with

[1] Purdy: Analysis of Urine, 1898, p. 60.
[2] Novy: Physiological Chemistry, 1898, p. 244.
[3] J. H. Long: Manual of Chemical Physiology, and Urine Analysis, 1898, p. 297.
[4] Von Jaksch.: Clinical Diognosis (translation), 1897.

the 5 c.c. volumetric pipette is so small as to be negligible, that the total quantity in the twenty-four hours must be greater than 1.2 and less than 1.3. The difference between 1.2 and 1.3 is only 8 per cent. of the first-named amount. As we take the mean between them the error must be less than 4 per cent., and is too small to be of any clinical importance. This error could be still further reduced by diluting the barium solution one-half and using more tubes for the final test, which would bring the limit of possible error down to less than 2 per cent., but the results here indicated are sufficiently close for all clinical purposes.

Having estimated the quantity of simple sulphates and the quantity of total—i. e., simple and conjugate sulphates combined—it only remains to subtract the former from the latter, which will give the quantity of ethereal sulphates, the proportion of which to the simple sulphates should be about 1 to 10 in ordinary health.

It may now and then happen that the quantity of sulphates present in the urine will be outside the range provided for by the preliminary test. This has very rarely happened, however, in a large experience in my clinical laboratory, dealing with a large range of cases exclusively within the domain of internal medicine, and almost exclusively "office patients," in whom chronic nutritional disorders, and gastrointestinal disturbances were rife.

There are several points in the method concerning which I would like to make brief comment. In the first place, if Salkowski's modification of Baumann's process as adopted by Von Jaksch[5] is reliable, the acidulation with acetic acid and boiling for the complete precipitation of the simple sulphates is unnecessary. In Salkowski's process they are precipitated by the simple addition of alkaline barium chlorid solution, and filtered after standing a few minutes, the remaining ethereal sulphates being estimated by a separate process. I have satisfied myself by repeated tests that this does remove the simple sulphates so completely that no reaction can be seen after adding acetic acid to the filtrate and boiling with excess of barium; however, out of deference to American authorities, and in view of the fact that both sets of tubes can be simultaneously boiled without additional trouble, these details are recommended.

The length of time which the ethereal sulphates are boiled with hydrochloric acid in my method may be regarded as short, in view of the fact that from a quarter of an hour to an hour is recommended by various authors. This I have also tested and find that no amount of boiling, up to half an hour, changes the results within the approximate limits already indicated.

In conclusion, it may be said that for those physicians who do not care to go to the small amount of trouble indicated in the method above described for the separate determination of simple and ethereal sulphates, approximate results can be obtained by the combination of Jaffe's method for the detection of indican with Salkowski's colorimetric method as given by Von Jaksch, together with the distillation of the urine and the addition of bromin water as tests for phenol and cresol and noting the reaction with hydrochloric acid as a rough test for skatol.

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[5] Von Jaksch: Clinical Diagnosis, 1897, p. 339.

ACCORDING to the *British Med. Jour.* (March 17), Spain has ordered a report on malaria. The Royal Academy of Medicine is to prepare it within two years.

A STUDY IN ANESTHESIA.

BY ROSALIE M. LADOVA, B.S., M.D.

CHICAGO.

I submit a record of 101 cases of anesthesia administered by me during my service at the Woman's and Mary Thompson hospitals of Chicago. Notes were taken as to the duration, pulse and respiration range, condition of the pupils, gastric irritation, how soon anesthetized, how soon out, and the amount of anesthetic. The pulse and respiration were recorded every time there was a change in either of the two, and in a few cases a complete record was made. Space does not permit publication of the tables *in toto,* and so I give only the lowest and highest pulse and respiration, except that their complete range is given in a few cases. What attracts special attention in these tables is this pulse and respiration range, and the relation of the two under anesthesia. The normal ratio of the pulse and respiration is disturbed in almost every case, and the changes in one are quite independent of the changes in the other.

CASE 6.

Pulse.	Respiration.	Pulse.	Respiration.
114	30	114	60
114	40	102	48
96	54	120	54
102	48	108	42
90	72	114	48
96	66	120	42
120	60	120	42
120	48		

CASE 55.

Pulse.	Respiration.	Pulse.	Respiration.
120	36	120	36
108	36	120	48
96	42	138	42
120	42	120	42
120	48	132	48
108	48	120	48
120	36	132	42
100	36		

CASE 67.

Pulse.	Respiration.	Pulse.	Respiration.
96	30	72	36
84	30	72	33
96	30	78	36
72	36	72	36
72	42	90	36
72	24	108	39

Cases 4, 5, 7, 12, 36, 49, 61, 65, 73, 74, 75, 76, 82, 83, 84, 88, 89, 90 and 99 show the same.

In Case 101, stretching of the rectal sphincter brought the respiration up from 30 to 60, without affecting the pulse. This emphasizes the importance of watching the former as well as the latter in every case. In two of the series the radial pulse was so small that it was difficult to count it, but the facial, temporal and carotid were good, also color, respiration, and pupilary reflex good, and the patients went through the operation safely. Hence the importance of taking the pulse in more than one location. While the pulse and respiration range depend to some extent on the duration and nature of the operation, the amount of shock connected with it, the amount of the anesthetic consumed, there are individual variations. I am rather inclined to think that shock of the operation is a more potent factor than is generally held. The highest pulse in the series was 168, the lowest 66. The highest respiration was 78, the lowest 18, both with a pulse of 108. The relation between the condition of the pupils and the pulse and respiration is not as close as one would be led to suppose, the connection between the pupil and respiration being the closer of the two. The pupils were contracted and active throughout, in 72 cases, moderately dilated and active in 6, contracted and sluggish in 3, dilated, sluggish or inactive in 3, changeable and unequal in 3. Case 6 had a duration of one hour and forty minutes. The pulse range was 90-120, respiration 30-72. The pupils were dilated, at times inactive, at times sluggish. The respiration here was high at times, and the pupils to correspond. Case 9

Case.	Duration.	Pulse, Resp.	Pupils.	Gastric irritation.	Anesthetized.	Out.	Amount of anesthetic.
1	35 m.	98-120; 22-30	Contracted, active	Yes.		40 m.	Ether, ½ lb.
2	2 h. 40 m.	96-120; 42-60	Contracted, active.	Yes.	20 m.	20 m.	Ether, 1 lb. A.C.E. dr. 3.
3	1 h. 30 m.	108-132; 36-48	Contracted, active.	Yes.	15 m.	1 h.	
4	. . . . .	136-150; 42-54	Contracted, active.	Yes.	15 m.	25 m.	
5	30 m.	120-120; 30	Contracted, active.	No.	30 m.	10 m.	A.C.E. dr. 9; $CHCl_3$ dr. 1.
6	1 h. 40 m.	90-120; 30-72	Widely dilated, at times sluggish, at times inactive.	Yes.	20 m.	1 h.	A.C.E. dr. 3; ether 1 lb.
7	1 h. 30 m.	78-108; 30-54	Contracted, active	Yes.	20 m.	1 h. 30 m.	
8	45 m.	96-102; 30-42	Contracted, active.	Yes.	10 m.	1 h.	
9	1 h.	78- 90; 30-42	Contracted, sluggish, later moderately dilated, inactive.	Yes.	10 m.	1 h.	Ether, ½ lb.
10	. . . . .	90-102; 30-36	Contracted, active	Yes.		. . . . .	A.C.E. dr. 4; ether, oz. 4.
11	1 h.	102-120; 36-54	Contracted, active	Yes.	20 m.	2 hrs.	
12	1 h.	84-102; 30-54	Contracted, active.	Yes.	10 m.	1 h.	
13	1 h. 30 m.	96-108; 33-48	Moderately dilated, active.	Yes.		1 h. 30 m.	A.C.E. dr. 10; ether, 1 lb.
14	1 h.	84-114; 24-42	Contracted, active.	Yes.	10 m.	1 h. 30 m.	Ether, oz. 13.
15	2 h. 15 m.	78-120; 30-48	Contracted, active.	Yes.	10 m.	1 h. 30 m.	A.E.C. dr. 4; ether, ½ lb.
16	30 m.	90-102; 24-30	Contracted, active.	Yes.	15 m.	1 h. 30 m.	A.C.E. dr. 8; oz. 3
17	2 h.	96-104; 32-42	Contracted, active, last 45 m. dilated, but active.	Yes.		1 h. 30 m.	
18	2 h.	96-120; 36-42	Contracted, dilated; contracted, active.	Yes.	15 m.	45 m.	
19	45 m.	120; 36	Contracted, active.	Yes.		1 h. 10 m.	
20	1 h.	92-120; 24-30	Contracted, active.	No.	15 m.	1 h.	
21	50 m.	120; 36	Contracted, active.	No.	10 m.	1 h. 40 m.	
22	30 m.	120-150;	Contracted, active.	Yes.	15 m.	25 m.	
23	1 h. 45 m.	110-138; 28-54	Contracted, active.	No.	10 m.	45 m.	
24	45 m.	96-108; 24-36	Dilated, contracted; moderately dilated, active.	Yes.	15 m.	1 h. 15 m.	
25	15 m.	132; 30	Contracted, active.	No.	15 m.	15 m.	
26	40 m.	132; 36	Contracted, active.	Yes.	10 m.	50 m.	
27	40 m.	120; 36	Contracted, active.	Yes.	10 m.	2[illegible] m.	
28	45 m.	66- 84; 36	Contracted, active.	Yes.	10 m.	30 m.	
29	45 m.	102-138; 36	Contracted, active.	No.	15 m.	30 m.	
30	20 m	96; 30	Contracted, active.	No.	10 m.	. . . . .	
31	35 m.	120; 54	Contracted, later dilated, but active.	Yes.	10 m.	1 h. 15 m.	
32	1 h. 5 m.	96-120; 36-48	Contracted, active.	Yes.	15 m.	1 h. 45 m.	
33	1 h. 15 m.	104-132;	Contracted, active; dilated, contracted on withdrawal of anesthetic.	Yes.		2 hrs. 45 m.	
34	30 m.	. . . . .	Contracted, active.	No.		. . . . .	
35	40 m.	96-120; 30-36	Dilated, sluggish.			1 h. 25 m.	Ether, ½ lb.
36	55 m.	90-108; 36-42	Contracted, active.		10 m.	1 h. 25 m.	Ether, oz. 18.
37	50 m.	72- 84; 28-48	Contracted, active.	Yes.		. . . . .	Ether, oz. 9.
38	1 h.	104-120; 30-42	Contracted, active.	No.		1 h. 10 m.	A. C. E. dr. 5; ether, oz. 11.
39	10 m.	90; 30	Contracted, active.	No.		1 h. 10 m.	A. C. E. dr. 5; ether, oz. 12.
40	40 m.	96- 96; 32-36	Contracted, active.	No.		10 m.	Ether, ½ lb.
41	45 m.	72-108; 36-42	Contracted, active.	Yes.		25 m.	
42	1 h. 20 m.	84-120; 24-36	Contracted, active.	Yes.		1 h. 5 m.	A. C. E. dr. 11; ether, ½ lb.
43	30 m.	78-108; 30-42	Contracted, active.	No.		2 hrs. 25 m.	Ether, oz. 12.
44	1 h. 25 m.	78-114; 42-48	Contracted, active.	No.		1 h	A. C. E. dr. 8; ether, oz. 11.
45	1 h.	76-114; 24-42	Contracted, active.	Yes.		2 hrs. 20 m.	A. C. E. dr. 6; ether, oz. 13.
46	2 hrs. 25 m.	96-132; 36-48	Sluggish, later dilated.	No.	5 m.	45 m.	A. C. E. oz. 2; ether, ½ lb.
47	2 hrs.	84-120; 42-60	Contracted, active.	Yes.		30 m.	A. C. E. dr. 8; ether, oz. 14.
48	1 h.	90-120; 30-54	Contracted, active.	Yes.		2 hrs. 5 m.	Ether, oz. 7.
49	1 h. 50 m.	72- 90; 36-36	Contracted, active.	No.		1 h. 30 m.	Ether, ½ lb.
50	50 m.	78-120; 36-48	Contracted, active.	Yes.		2 hrs.	Ether, ½ lb.
51	1 h. 45 m.	84-120; 36-42	Contracted, active.	Yes.		1 h. 35 m.	A. C. E. dr. 9; ether, ½ lb.
52	50 m.	72-114; 24-30	Contracted, active, dilated with pulse 72; contracted on withdrawal of anesthetic.	Yes.		1 h. 10 m.	A. C. E. dr. 4; ether, oz. 13.
53	45 m.	108-120; 42-78	Moderately dilated			. . . . .	
54	15 m.	96-114; 24-36	. . . . .	No.		45 m.	Ether, oz. 15.
55	2 hrs.	96-138; 36-48	Moderately dilated, active	No.		50 m.	Ether, oz. 12.
56	1 h.	90-102; 30-36	Contracted, active.	Yes.		1 h.	Ether, oz. 5.
57	45 m.	84-114; 24-36	Contracted, active.	No.		20 m.	
58	50 m.	72-120; 30-36	Contracted, active	No.		30 m.	
59	40 m.	144;	Contracted, active	Yes.		10 m.	
60	35 m.	118-120; 30-36	Contracted, active	Yes.	10 m.	20 m.	
61	1 h.	72- 90; 30-30	Contracted, active.	No.		1 h.	
62	30 m.	96-120;	Contracted, active	No.	10 m.	20 m.	
63	50 m.	96-114; 24-42	Contracted, active		10 m.	. . . . .	
64	45 m.	96-120; 30-36	Contracted, active				
65	45 m.	94-132; 30-34	Contracted, active	No.	10 m.	15 m.	
66	20 m.	114-120; 30-30	Contracted, active	No.		. . . . .	
67	2 hrs.	72-108; 24-42	Contracted, active	No.	10 m.	30 m.	Ether, ½ lb.
68	1 h.	90-108; 20-30	Contracted, active	Yes.	10 m.	1 h.	Ether, ½ lb.
69	30 m.	90; 30	Contracted, active		15 m.	. . . . .	Ether, oz. 5.
70	1 h.	90-108; 30-48	Contracted, active	No.	10 m.	30 m.	
71	1 h. 15 m.	90-132; 30-48	Contracted, active	Yes.		20 m.	$CHCl_3$, oz 2.
72	50 m.	102-126; 18-36	Sluggish.	No.	15 m.	20 m.	Ether, oz. 7.
73	30 m.	102-114; 42-42	Sluggish.	No.	15 m.	20 m.	
74	45 m.	120-132; 42	Contracted, active.	No.	7 m.	20 m.	$CHCl_3$, oz. 1.
75	35 m.	72- 96; 24-30	Contracted, active.	Yes.	10 m.	30 m.	
76	20 m.	90-102; 24	Contracted, active.	Yes.	10 m.	20 m.	
77	45 m.	90-102; 24-30	Moderately dilated, active	No	10 m.	20 m.	
78	1 h.	42-60	Sluggish, then dilated		7 m.	. . . . .	Chloroform and ether 1:2, oz. 1.
79	15 m.	96-102; 24-30	Contracted, active	Yes.	5 m.	5 m.	$CHCl_3$, dr. 3.
80	20 m.	84-102; 30-48	Contracted, active.		15 m.	20 m.	Ether, oz. 6.
81	25 m.	96-126; 36-42	Contracted, active		10 m.	15 m.	
82	1 h. 10 m.	90-132; 36-42	Contracted, active.	Yes.	7 m.	30 m.	
83	30 m.	90-102; 30-36	Contracted, active	No.	10 m.	50 m.	
84	30 m.	132-138; 54	Moderately dilated, active		15 m.	15 m.	Ether, oz. 11.
85	30 m.	78-120; 30-48	Contracted, active	Yes.	10 m.	15 m.	Ether, oz. 4.
86	25 m.	90-102; 30-36	Contracted, active	No.	10 m.	10 m.	Ether, oz. 7.
87	1 h. 20 m.	102-168; 36-48	Contracted, active; later dilated	No.	25 m.	15 m.	Ether, 1 lb.
88	1 h. 10 m.	72- 90; 24-48	Sluggish.	No.	15 m.	5 m.	Ether, oz. 6; $CHCl_3$, dr. 7.
89	25 m.	96-114; 30-36	Contracted, active.	No.	15 m.	30 m.	Ether, oz. 6.
90	45 m.	72- 78; 18-24	Pin point.	No.	15 m.	15 m.	Ether, oz. 10.
91	25 m.	78- 90; 24	. . . . .	No.	10 m.	15 m.	
92	2 hrs. 15 m.	66-102; 30-54	Sluggish, wide, inactive; contracted, active	Yes.	7 m.	20 m.	$CHCl_3$, oz., dr. 1; ether, oz. 6½.
93	55 m.	78-102; 24-36	Contracted, active	No.	15 m.	45 m.	Ether, oz. 10.
94	20 m.	90-102; 30	Contracted, active.	Yes.	10 m.	35 m.	Ether, oz. 6.
95	1 h. 40 m.	90-102; 30-42	Contracted, active, unequal inact., unequal right act. both act., both inact., both act., both inact. again.	No.	10 m.	10 m.	$CHCl_3$, oz. 1, dr. 2.
96	35 m.	72- 90; 30-42	Contracted, active	No.	10 m.	15 m.	$CHCl_3$, oz. 1.
97	35 m.	72- 90; 20-24	Contracted, active	Yes.	15 m.	35 m.	Ether, oz. 6.
98	1 h.	90-114; 26-42	Contracted, active.	Yes.	15 m.	30 m.	Ether, oz. 11.
99	50 m.	. . . . .	Contracted, active	Yes.	5 m.	15 m.	Ether, oz. 8.
100	1 h.	66- 72; 24-30	Contracted, active.	Yes.	5 m.	20 m.	$CHCl_3$, oz. 1, dr. 2.
101	1 h. 5 m.	102-132; 30-60	Contracted, active.	No.	5 m.	. . . . .	$CHCl_3$, oz. 1, dr. 2.

had a duration of one hour. The pulse was 84-90, the respiration 30-42. The pupils were contracted, but sluggish; later, with a pulse of 84 and respiration 42, they were moderately dilated and inactive to the end.

Case 35 had a duration of 40 minutes. The pulse was 90-120, respiration 30-36. The pupils were dilated and sluggish throughout. Case 95 gave a pulse of 90-102, respiration 30-42, pupils changeable, unequal and at times inactive. Case 92 had a duration of 2¼ hours. Pulse was 66-102, respiration 30-54, the pupils sluggish, then wide, inactive, later contracted and active. (Note Cases 72 and 73.) In some cases a moderately dilated pupil, with an active or sluggish reflex is due to an overdose of the anesthetic, and then it contracts on withdrawal of the latter; in others it may be due to anemia, in which case the condition sets in early in the anesthesia and withdrawal of this produces no effect.

The following case is very instructive, showing the rather loose connection between the pulse, respiration and pupil: Case 95 gave a pulse of 96, 102, 102, 102, 90, 102, 96, 90, 96, 90, 90, 108, 96, and a respiration of 30, 30,30,42,33,30,36,30,36,39,42,42,36. The pupils were contracted, active, then unequal and inactive, unequal, right active, left inactive, then both active, both inactive, then again both active, then both inactive.

In 48 of the series gastric irritation was present, in 38 absent. In the rest no record was made. Although the degree of anesthesia has some bearing on the nausea and vomiting, incomplete anesthesia favoring it, it is often due to high irritability of the stomach of the individual. In Case 19, the patient, after being promptly anesthetized, was kept lightly under for some time on account of delay in the operation. Nausea persisted a week. Whether it was due to this fact alone I can not positively say, but I am inclined to think that this was the case.

Complete anesthesia was secured in less than ten minutes in 8 cases, in ten in 30, in fifteen in 20, in twenty in 4, in twenty-five in 1, in thirty in 1 case. Ten to fifteen minutes is the average time; to try to secure it in much less time means to shut off the air before the patient has lost consciousness, and give a smothering feeling, which is anything but humane.

The time it took the patients to get over the effects of the anesthetic varied from five minutes to 2¾ hours. The length of time corresponds more to the amount of the anesthetic consumed than to the duration of the anesthetic. (Note Cases 43, 51, 54 and 79.) While the amount consumed depends on the individual susceptibility of the patient, to some extent, the duration of the anesthesia and the skill of the anesthetist, which is acquired through experience combined with close observation, have much to do with it. In Cases 43 and 54, the individual susceptibility seems to be the determining factor (Note Cases 2, 15, 42, 43, 47, 49, 51, 52, 54, 39, 55, 56, 71 and 78.)

The stage of excitement was present in only 4 patients. I will say in conclusion that by giving the patient his or her undivided attention as to pulse, respiration and pupilary reflex, the anesthetist will avoid cyanosis, dilated and inactive pupils, apnea and other unfavorable signs.

I can not imagine anything more disturbing to the equanimity of the surgeon than the anesthetizer's report that the patient is not breathing well, or that the pupils are beginning to dilate. It is almost inconceivable that the idea of a trained anesthetist in every hospital is gaining ground so slowly in the minds of those in power.

601 North Robey Street.

A PHYSIOLOGIC CONSIDERATION OF THE FOOD VALUE OF ALCOHOL,

WITH ESPECIAL REFERENCE TO THE EXPERIMENTS OF PROFESSOR W. O. ATWATER, CONTAINED IN BULLETIN NO. 69 OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.

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AND

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PHILADELPHIA.

It has been remarked that the medical men of the present day are distinguished above all who have preceded them by their practical knowledge of dietetics. It may with equal truth be said that the people of the present day exhibit more intelligent interest in the discussion of sanitary problems, both public and private, than any preceding generation, and this interest appears to be steadily increasing. In fact, it is a most encouraging sign of our advance in civilization, and a favorable evidence of our culture at this end of the century, that so large a proportion of the community is demanding exact information as to the positive and economic value of the various alimentary substances offered to man as his daily food. Probably there is no other substance of this kind which is attracting more general attention at this time than alcohol, nor about which the desire for an exact determination of the true food value is more insistent.

As to the cause of this gratifying interest in dietetics, it may in part be ascribed to the general increase of intelligence in the community, and it may have partly resulted from the activity of local boards of health, which may have forcibly directed public attention to the importance of the questions. A large share, however, in our opinion, in this country at least, may with justice be attributed to the systematic study of physiology and hygiene, including the scientific temperance instruction, which has for some years been a part of the regular course of study for all pupils in our public schools. This course has so commended itself to the judgment of the people that the national congress and—with the exception of Virginia, Georgia and Utah—every state of the Union, have passed laws requiring such instruction to be given to all pupils in all schools under federal or state jurisdiction. This study is popularly called "scientific temperance" because it includes special instruction as to the physiologic effects of alcoholic drinks and other narcotics when taken into the human body. To the untiring energy and zeal of the Department of Scientific Instruction of the Woman's Christian Temperance Union, too much credit can not be given for bringing about this gratifying state of affairs, nor to the superintendent of that department, Mrs. Mary H. Hunt, of Boston, under whose skilful management the efforts of the Union have been rewarded with such signal success.

Recently a criticism of the teachings contained in the text-books recommended by this department on the subject of alcohol has been made, and some of the statements, especially the one declaring alcohol not to be a food but that it is a poison, have been challenged. The recent experiments of Professor Atwater have been freely cited in support of the foregoing criticism, and also of the view that alcohol is entitled to rank as a food with sugar, starch and fat.

In the summary of the report of Professor Atwater's experiments, issued by the United States Department of Agriculture, the following paragraphs are found:

As regards the special action of alcohol three important results were observed in these experiments. 1. Extremely little of the alcohol was given off from the body unconsumed, in the breath or otherwise. The alcohol was oxidized, i. e., burned, as completely as bread, meat, and other ordinary foods in the body and in the same way. 2. In the oxidation all of the potential energy of the alcohol was transformed into heat or muscular energy. In other words, the body transformed the energy of the alcohol just as it did that of sugar, starch and fat. 3. The alcohol protected the material of the body from consumption just as effectively as the corresponding amounts of sugar, starch and fat. That is, whether the body was at rest or at work, it held its own just as well when alcohol formed a part of the diet as it did with a diet without alcohol. The official summary further states that in unauthorized statements regarding these experiments, which have been widely disseminated, much more has been claimed for them than they legitimately cover.

The summary concludes with the following caution, which all who discuss the question will do well to heed:

It should be remembered that the physiologic action of alcohol involves much besides its nutritive effect. Its influence on the circulatory and nervous functions is especially important. These matters are not treated in Professor Atwater's experiments.

It is to be regretted that this last statement did not accompany the newspaper reports sent out last June, five months in advance of the publication of any data on which they were based. If it had been made then, much misapprehension on the part of the public, in favor of the use of alcohol as a beverage, might have been prevented.

Previous to making an analysis of the results obtained by Professor Atwater, as published in "Bulletin 69," of the Department of Agriculture, in order to ascertain their real scientific import, it may not be amiss to briefly review the testimony of a few well-known authorities as to the value of alcohol as a food and its place in dietetics. Professor Atwater has said that "Whether alcohol is to be called a food or not depends upon the definition of a food." As he does not himself supply such definition, it is to be inferred that he is in accord with other physiologists upon the subject of what the requirements of a food should be. It is understood that a definition might be framed which physiologists generally could not accept. For instance, to adopt the legal definition, as contained in laws to prevent food-adulteration, "that the term food shall include every article used for food or drink by man," would be to settle the whole question offhand, since alcoholic liquors, being used for drink by man, would necessarily be food.

However useful such a definition might prove for purposes of preventing food-adulteration, it obviously does not touch on the very vital question of the real nutritive value of alcohol. The "Standard Dictionary" defines food as "any substance that, being taken into the body of animal or plant, serves, through organic action, to build up normal structure or supply the waste of tissue." This definition, on the other hand, is too restricted to admit alcohol as a food, for no physiologist, with any regard for his reputation, would assert, in the light of present knowledge, that alcohol serves "to build up normal structure or supply the waste of tissue." Within the limits of this definition, alcohol could not be admitted to be a food at all. It is to be noticed, however, that this definition entirely disregards the important class of thermogenic foods, which do not necessarily build up tissue, but which are destroyed in the system by oxidation, just as oil is burnt in a lamp, and which yield energy in the form of heat as a result of their combustion. If alcohol is to be regarded as a food, it is to this class of substances that it must be assigned. In fact, the utmost claim that is made by those who defend the use of alcohol as a food is that a small quantity, not exceeding 1½ or 2 ounces in twenty-four hours, for a healthy adult, can be consumed or oxidized in the human body, yielding up its equivalent in calories of energy, and that it is therefore capable of taking the place of a corresponding small quantity of fat or of carbohydrates in the food. In the summary of Professor Atwater's experiments already referred to, the statement is made that:

The alcohol was oxidized, i. e., burned, as completely as bread, meat and other ordinary foods in the body and in the same way. In the oxidation all of the potential energy of the alcohol was transferred into heat or muscular energy. In other words, the body transformed the energy of the alcohol just as it did that of starch, sugar and fat.

The natural inference from this is that a moderate quantity of alcohol is an efficient and acceptable substitute for an equivalent amount of hydrogen and carbon which might be contained in starch, sugar, or fat in the daily diet. Such an inference, however, is incorrect and misleading. It is incorrect because alcohol is not innocuous like sugar and starch, and it can not therefore be accepted as a substitute in any normal dietary. We have already quoted Professor Atwater's official summary, as saying:

It should be remembered that the physiologic action of alcohol involves much besides its nutritive effect. Its influence on the circulatory and nervous functions is especially important. These matters are not treated in Professor Atwater's experiments.

A food, as we define it, is any substance which, when taken into the living human body, is capable of—usually after being subjected to the action of the digestive organs—entering, through the absorbent vessels, into the circulation, and of supplying assimilative material and potential energy to the cellular elements of the tissues, and of promoting normal metabolism and the general bodily health. The following less technical definition also, though simpler, seems to be what every definition should be, both exclusive and inclusive: "Food is any substance whose nature it is, when absorbed into the blood, to build up tissue, retard waste, or furnish energy to the body without injuring the latter." Or in still simpler and more popular form: "Food is a substance which is capable of assimilation and which, when properly administered, nourishes the body without injuring it."

When the statement is made to the public that a certain substance is a food the implication is that it is a wholesome and beneficial food under ordinary and appropriate circumstances. The scientific proof that a limited quantity of alcohol can be oxidized in the body, even though heat and force be liberated by such oxidation, would not make alcohol a food like sugar or starch, as has been hastily assumed to be the case, in the face of cumulative testimony, of experience and of physiologic investigation, to the contrary. Professor Atwater's own figures in his "metabolism experiments Numbers 7 and 10" do not support his claim that the alcohol "protected the material of the body from consumption just as effectively as the corresponding amounts of sugar, starch or fat," as we shall proceed to demonstrate presently.

Even admitting that alcohol oxidized yields certain calories of energy, it has not therefore, *ipso facto,* any

just claim to be regarded as a substance suitable for human food. On the contrary, this claim is completely disproved if its deleterious effects can be shown to more than counterbalance this slight advantage. It is true that such general effects on circulatory and nervous functions are admittedly beyond the scope of Professor Atwater's experiments, but they can not be omitted from a discussion of the use of alcohol as a food. In this connection we quote the well-known author of a standard text-book on physiology, Prof. William B. Carpenter, whose views, expressed nearly half a century ago, are as true to-day as they were then, having never been disproved. Professor Carpenter says:

> The physiologic objections to the habitual use of alcoholic liquors rest on the following grounds: 1. They are universally admitted to possess a *poisonous* character, exhibited when they are taken in tolerably large doses, by loss of appetite and muscular power and control over the voluntary movements, with partial paralysis of the sympathetic nervous system, leading to dilatation of the smaller vessels; while death is the speedy result of very large doses through the suspension of nervous power, which their introduction into the circulation in sufficient quantity is certain to induce. 2. When habitually used in excessive quantities, universal experience shows that alcoholic liquors tend to produce a morbid condition of the body at large, and especially of the nervous system, this condition being such as a knowledge of its *modus operandi* on the body would lead the physiologist to predicate. 3. The frequent occurrence of more chronic diseases of the same character, among persons in advanced life, who have habitually made use of alcoholic liquors in "moderate" amount, affords a strong probability that they result from a gradual perversion of the nutritive processes of which that habit is the cause. This perversion manifests itself peculiarly in the tendency to fatty degeneration of the muscular substances of the heart, of the walls of the arteries, of the glandular substances of the kidney and liver, and of many other parts; and thus gives rise to a great variety of forms of disease. 4. The special liability of the intemperate to zymotic diseases seems an indication that the *habitual* ingestion of alcoholic liquors tends to prevent the due elimination of the azotized products of the disintegration of the system, and thus induces a "fermentable" condition of the blood. 5. Extended experience has shown that, notwithstanding the temporary augmentation of power, which may result from the occasional use of fermented liquors, the capacity for prolonged endurance of mental or bodily labor, and for resisting the extremes of heat and cold, as well as other depressing agencies, is diminished rather than increased by their habitual employment; and the reason for this, so far as cold is concerned, is sufficiently obvious. Under ordinary circumstances of exposure to cold, the circulation of the blood through the vessels of the surface, owing to the contraction of the cutaneous capillaries, is greatly reduced, and much less heat is lost by contraction and radiation, the skin alone being a very bad conductor. When, however, considerable quantities of alcohol are taken more or less complete paralysis of the vasomotor nervous system is the result: the vessels of the skin no longer respond to the stimulus of cold, and the blood traversing them loses a large amount of heat; so that while in all instances where the quantity of alcohol consumed exceeds the moderate limits of 1½ to 2 ounces *per diem*, there is diminished power of resistance to cold, this is felt much more acutely in extreme cases, and death may take place from the general reduction of the temperature. On these grounds the author has felt himself fully justified in the conclusion that for physiologic reasons alone, habitual abstinence from alcoholic liquors is the best rule that can be laid down for the great majority of healthy individuals; the exceptional cases in which any real benefit can be derived from their use being comparatively few.

This positive and authoritative statement of the physiologic objections to the use of alcohol, even in moderate quantity, in the diet, concluding with a strong recommendation for habitual abstinence as the best rule that can be laid down for the great majority of healthy individuals, seems to be conclusive. It certainly should not be laid aside or lost sight of in any discussion of the questions of scientific interest regarding the effects of alcohol on metabolism and its possible limited action as a force-producer or force-liberator in the human system.

The favorable effects of alcoholic preparations, when administered in certain conditions of disease, have been offered as an argument to prove the nutritive value of alcohol. This claim is summarily dismissed by Prof. J. Bauer, in the following statement: "I am, however, of the opinion that the favorable effects of the administration of alcoholic drinks in many instances are satisfactorily explained if we regard them solely as excitants and stimulants, those especially which contain no appreciable constituents other than alcohol and water, and estimate their nutritive properties as insignificant."[1] Clinical observation therefore confirms physiologic teaching that alcohol is not a food, but is simply an excitant, yielding a comparatively insignificant amount of energy to the body.

Direct testimony to the same effect is also given by Dr. Rudolf Rosemann, in an article "On the Influence of Alcohol upon Human Metabolism,"[2] in which he details the results of certain physiologic experiments similar in their scope to Professor Atwater's. As the result of these experiments, Rosemann concludes that alcohol does not possess the same power that starches and fats have, to protect the albuminous principles from wasting. This is contrary to the statement of the summary already referred to—which, however, as already intimated, does not appear to be in accord with Professor Atwater's own figures. Rosemann confirms the statement of Miura that "albumin-sparing is no primary action of alcohol" and concludes his article with the remark that, as a food, alcohol must be regarded merely "as an article of luxury (Genuss-mittel) because its action as a nutritive material is, solely and alone, the storing up of fat, which, generally speaking, is not a very desirable object." As regards its value to the sick, he says: "So much, however, can be regarded as certainly estabished; the hope that the calories of alcohol may be available for the protection of the proteids of the sick must be regarded as having no foundation. . . . Alcohol can no longer be looked upon as an efficient remedy for diet-therapy."

It is a curious but a well-established fact in physiology and pharmacology that the human system under certain circumstances is capable of gradually becoming accustomed to the actions of certain poisons, so that, when reguarly taken for a length of time, an adjustment of the nutritive processes and nervous forces to the new conditions takes place. In such cases the sudden taking away of the poison is usually accompanied by symptoms or disorder and disturbance of apparent health. This is seen in the case of the arsenic eaters of Styria, and in morphin victims, and also in the case of persons who are accustomed to the constant use of alcohol as a part of their daily diet. That such individuals suffer from impaired vitality is a well-known clinical fact. It has been repeatedly observed by surgeons that patients accustomed to the use of spirits require much larger quantities of ether or chloroform to induce anesthesia for the performance of surgical operations. Unfortunately for such individuals, it is in just these cases that fatty degeneration and fibrous change have occurred in the heart, liver, and kidneys, and in these fatal accidents are most likely to occur from the effects of anesthetics.

[1] Ziemssen's Handbook of General Therapeutics, vol. i, p. 70. English edition, New York, 1885.

[2] Ueber den Einfluss des Alkohols auf dem Menschlichen Stoffwechsel. Ztft. f. Diätetische und Physikalische Therapie, Leipzig, 1898, p. 138.

At the present day, the weight of evidence is decidedly against the popular opinion that alcohol stimulates the nerve-centers. In opposition to Binz and his followers, Schmiedeberg, Bunge and others maintain that alcohol does not stimulate the central nervous system, the symptoms of excitement being not due to true stimulation of motor areas, but that these symptoms occur as the result of those areas being freed from control by the weakening of the highest functions of the brain—the will and the self-restraint. A recent authority, Professor Cushny, says that Schmiedeberg's theory seems the more satisfactory one—"for there is evidence on every hand that even the smallest quantities of alcohol tend to lessen the activity of the brain. . . . Evidences of the depressing action of alcohol on the brain are embarrassing by their number."[3] It is needless to stop to point out that neither sugar nor fat, taken into the body as food, cause any such depressing action on the nerve-cells as does alcohol, and this fact of itself is sufficient to stamp it as unfit for human food and to place it as a narcotic among medicinal substances in the class to which opium, the bromids, and anesthetic agents belong—a place that is usually assigned to it in our text-books on pharmacology and therapeutics.

Turning now to the examination of the details of Professor Atwater's experiments, we find that criticism is to some extent forestalled by the statement that they are only a portion of a series, the data of which are to be published at a future time, and that they are preliminary and not conclusive. It is to be noted, however, that the principal subject of the experiments was a man who had been accustomed from his youth to the use of a moderate quantity of alcohol in his diet. As already intimated above, it is questionable whether such an individual is in a strictly normal condition, and whether or not the results from such experiments could be accepted as applicable to healthy adults who had not become accustomed to alcohol. This point, however, we will not dwell upon. As therapeutists, however, we may express surprise that Professor Atwater, in his experiments, entirely ignores the physiologic effects of 300 c.c. of infusion of coffee given three times a day, as regards especially its influence on nutrition, as an *aliment d'épargne*, or *spar-mittel*, and that he counts it only as so much water. The nitrogen-content of caffein is an entirely subordinate question, just as it would be in the case of atropin or aconitin. There are many individuals in the community, we are convinced, whose nutrition would be seriously affected by one or two cups of coffee taken three times a day, and it might be well to repeat this series of experiments, leaving out this disregarded but disturbing factor in the problem. It is a matter of common knowledge that coffee may be well borne by those who are leading active lives in the open air, but is often badly borne by those who lead sedentary lives. Therefore, while the subject of the experiment might with impunity drink coffee three times a day while he was unconfined, it is quite reasonable to suppose that it would produce its characteristic effects to a greater degree when he was in the calorimeter.

As has already been stated, it is to be regretted that the subject chosen was one whose personal equation had been disturbed not only by the use of alcohol in small quantities from his youth, but also, and probably what is more important here, by the total abstention from all alcohol "for a time previous to the period of the experiments," during which period "he used only what was needed for the experiment."

[3] Text-book of Pharmacology and Therapeutics, Philadelphia: 1899, pp. 131, 132.

Six experiments are detailed in full, called respectively, "Metabolism Experiments Nos. 5, 6, 7, 8, 9, and 10." It should be noted that after Experiment No. 8, some change was instituted in their conduction, consisting mainy in the method of "preparation and sampling of food materials," enabling the observers to obtain, as they believed, "more accurate samples than had hitherto been possible;" so that the first four experiments should be considered in a group by themselves and apart from the last two, which form another, and perhaps more accurate, group.

Every scientist will appreciate the liability to error which is involved in the consideration of such a small number of experiments; but if they are all consistent in one respect, their evidence has a certain weight and can be accepted, especially as Professor Atwater has ventured to publicly announce certain deductions from them and thus made them legitimate subjects for criticism and discussion.

As stated in the summary issued by the United States Department of Agriculture, Experiments Nos. 7 and 10 apparently show that small or moderate quantities of alcohol can be consumed in the body and, also, that such combustion of alcohol is almost complete and results in its conversion into its equivalent of heat or potential energy, with but very little loss, from the body, of alcohol in an unoxidized—unconsumed—state. This, we believe, is already admitted by most modern physiologists, and it is not questioned, therefore, that small quantities of alcohol can, like other matters—foods—produce heat and energy in the body.

It is also stated, however, in the aforesaid summary, that it was observed as a result of these experiments that "the alcohol protected the material of the body from consumption just as effectively as the corresponding amounts of sugar, starch and fat. That is, whether the body was at rest or at work, it held its own just as well when alcohol formed a part of the diet as it did with a diet without alcohol." This may be true as far as it concerns the passive carbon and fat of the body, but it is certainly contradicted, in so far as it refers to the active and more valuable and important nitrogen and protein of the body, by Professor Atwater's own figures, given in the various tables printed in Bulletin 69—that is, as far as "rest experiments" are concerned, for, unfortunately, there is no experiment detailed in the bulletin in which alcohol was administered during a period of work, and we can not, therefore, contradict the assertion of the summary in that respect.

Table A has been carefully compiled by us from the various tables included under the respective experiments in the Bulletin. Table B has been, in turn, compiled from Table A, for reasons to be mentioned later. A study of these tables will at once show that when alcohol is substituted in part for carbonaceous foods, *there is an increased loss of body nitrogen*, it being remembered that in each case the quota of food was primarily, as nearly as possible, that necessary to maintain the nitrogen and carbon equilibrium of the body. This same deduction is to be derived from a direct study of Tables 42, 44, 84, and 86 of the Bulletin and we can not, therefore, understand or accept the statement quoted above, that "alcohol protected the material of the body from consumption just as effectively as the corresponding amounts of sugar, starch and fat." In fact, comparing Experiment No. 7 with No. 5—the two being carried on under as nearly as possible similar conditions except that the former was with, and the latter without, alcohol—we find that although there was less of nitrogen, protein,

TABLE A, SHOWING INCOME AND OUTGO OF NITROGEN AND CARBON.

(Compiled from Prof. Atwater's report in Bulletin 69.)

Experiment.		Nitrogen given in food.	Nitrogen gained or lost. + gain, — loss.	Protein given in food.	Protein gained or lost. + gain, — loss.	Carbon given in food.	Carbon gained or lost. + gain, — loss.	Carbohydrates given in food.	Fat given in food.	Fat gained or lost. + gain, — loss.
No. 5. Rest; no alcohol. .	4 days of experiment	76.2	—2.7	476.4	—16.8	995.56	— 32.8	1102.0	378.8	— 31.2
	Last 3 days of experiment	57.15	+0.1	357.3	+ 0.7	746.67	— 17.3	826.5	284.1	— 23.1
	Daily average of 4 days	19.05	—0.675	119.1	— 4.2	248.89	— 8.2	275.5	94.7	— 7.8
	Daily average of last 3 days		+0.033		+ 0.23		— 5.77			— 7.7
	1st day of experiment		+2.8		—17.5		— 15.5			— 8.1
No. 6. Work; no alcohol. .	4 days of experiment	76.32	+4.4	476.4	+27.5	1346.72	—133 4	1511.2	611.6	—193.5
	Last 3 days of experiment	57.24	+4.3	357.3	+26.9	1010.04	— 80.6	1133.4	458.7	—124.1
	Daily average of 4 days	19.08	+1.1	119.1	+ 6.88	336.68	— 33.37	377.8	152.9	— 48.4
	Daily average of last 3 days		+1.43		+ 8.97		— 26.87			— 41.4
	1st day of experiment		+0.1		+ 0.6		— 52.8			— 69.4
No. 7. Rest; alcohol . . .	4 days of experiment	66.80	—7.7	417.6	—48.2	Inclu. alc. 874.24	— 66.4	Inclu. alc. 1253.6	272.8	— 57.3
	Last 3 days of experiment	50.10	—3.9	313.2	—24.4	655.71	— 55.3	940.2	204.6	— 55.3
	Daily average of 4 days	16 70	—1.9	104.4	—12.0	218.57	— 17.4	313.4	68.2	— 14.3
	Daily average of last 3 days		—1.3		— 8.1		— 18.4			— 18.4
	1st day of experiment		—3.8		—23.8		— 14.1			— 2.0
No. 8. Rest; no alcohol. .	4 days of experiment	83.00	0.	517.6	0.	1082.72	+ 86.7	1231.2	381.8	+113.3
	Last 3 days of experiment	62.25	+1.4	388.2	+ 8.7	813.04	+ 69.5	923.4	287.1	+ 84.8
	Daily average of 4 days	20.75	0	129.4	0.	270.68	+ 21.7	307.8	95.7	+ 28.3
	Daily average of last 3 days		+ .467		+ 2.9		+ 23.17			+ 28.27
	1st day of experiment		—1.4		— 8.7		+ 17.2			+ 28.5
No. 9. Rest; no alcohol. .	4 days of experiment	76.32	—2.3	478.4	—14.4	1046.16	+ 48.0	1367.2	276.0	+ 72.7
	Last 3 days of experiment	57.24	—1.5	358.8	— 9 4	784.62	+ 39.3	1025.4	207 4	+ 57.8
	Daily average of 4 days	19.08	—0.6	119.6	— 3.6	261.55	+ 12.0	341.8	69.0	+ 18.2
	Daily average of last 3 days		—0.5		— 3.13		+ 13.0			+ 19.27
	1st day of experiment		—0.8		— 5.0		+ 8.7			+ 14.9
No. 10. Rest; alcohol . . .	4 days of experiment	79.00	—4.4	494.0	—27.5	Inclu. alc. 1013.22	+ 50.3	Inclu. alc. 1681 6	126.4	+ 84.8
	Last 3 days of experiment	59.25	—3.0	370.5	—18.7	759.90	+ 30.3	1261.3	94.8	+ 52.6
	Daily average of 4 days	19.75	—1.1	123.5	— 6 9	253.33	+ 12.6	420.4	31.6	+ 21.2
	Daily average of last 3 days		—1.0		— 6.25		+ 10.1			+ 17.5
	1st day of experiment		—1.4		— 8.8		+ 20.0			+ 32.2

carbon and fat given during the period of No. 7, there was a greater body loss of each of these food constituents, than in the corresponding data of Experiment No. 5.

In spite of the preliminary feeding of the subject on the selected diet for several days prior to his entering the calorimeter—or chamber in which he lived continuously during the entire period of the experiment—it was found "that the loss of nitrogen was greater, or the gain less, on the first than on the succeeding days." This was the case in every one of the experiments detailed, and is explained in the Bulletin as follows: "Assuming that the nitrogen lag is short, this may perhaps be connected with the slight mental excitement which accompanies the accommodating of the subject to the conditions of life in the chamber." At any rate, it shows that the personal equation can be, and was, for a time disturbed by the experiment, and that the conditions were not absolutely normal.

Moreover, it is evident that the daily average of the factors for the entire four days spent in the calorimeter will not be the same as that for the last three days of the experiment, and that the average of the latter will be more correct for the given conditions. For this reason Table B, with its respective subdivisions, was prepared.

Moreover, it is also to be noted that this disturbance on the *first* day, involving a greater loss, or lessened gain, of nitrogen and protein, is *always more marked* in the experiments in which alcohol was made to take the place of food, indicating that it—alcohol—tended to create a condition of more unstable equilibrium in the body, as well as to deprive the latter of part of its nitrogen and protein store.

In conclusion, Professor Atwater's own experiments and figures only serve to confirm the opinion so well expressed by Fothergill, that the consideration of alcohol as a "force-producer" can never be entirely dissociated from the fact that it is also a "force-liberator," and that the evils of the latter function overbalance in result the benefits of the former.

TABLE B, SHOWING GAIN OR LOSS OF NITROGEN, ETC.

Experiment.		Nitrogen.	Protein.	Carbon.	Fat.
a, Daily average for all four days.					
No. 5	Rest; no alcohol. .	—0.675	— 4.2	— 8.2	— 7.8
" 6	Work; no alcohol. .	+1.10	+ 6.88	—33.37	—48.4
" 7	Rest; alcohol. . . .	—1.9	—12.0	—17.4	—14.3
" 8	Rest; no alcohol . .	0	0	+21.7	+28.3
" 9	Rest; no alcohol . .	—0.6	— 3.6	—12.0	+18.2
" 10	Rest; alcohol. . . .	—1.1	— 6.9	+12.6	+21.2
(*b*) For first day only.					
No. 5	Rest; no alcohol. . .	—2 8	—17.5	—15.5	— 8.1
" 6	Work; no alcohol. .	+0.1	+ 0.6	—52.8	—69.4
" 7	Rest; alcohol. . . .	—3.8	—23.8	—14.1	— 2.0
" 8	Rest; no alcohol . .	—1.4	— 8.7	+17 2	+28.5
" 9	Rest; no alcohol . .	—0.8	— 5 0	+ 8.7	+14.9
" 10	Rest; alcohol. . . .	—1.4	— 8 8	+20.0	+32.2
(*c*) Daily average for last three days.					
No. 5	Rest; no alcohol . .	+0.03	+ 0 23	— 5.77	— 7.7
" 6	Work; no alcohol. .	+1.43	+ 9.97	—26.87	—41.4
" 7	Rest; alcohol. . . .	—1.3	— 8.1	—18.4	—18.4
" 8	Rest; no alcohol . .	+0.47	+ 2.9	+23.17	+28.27
" 9	Rest; no alcohol . .	—0.5	— 3.13	+13.0	+19.27
" 10	Rest; alcohol. . . .	—1.6	— 6.21	+10.1	+17.5

Note that in any one experiment the food is the same in quality and quantity for each of the four days of that experiment.
— Loss. + Gain.

Therefore, we are forced to the conclusion that Professor Atwater has produced practically no evidence whatever to support the claim that alcohol is a wholesome or useful food, nor to change the generally accepted view that its physiologic action on the human body is destructive and never constructive.

CELL EMBOLISM.—According to Charrin and Levaditi, Paris Académie des Sciences, in a case of typhoid fever and with experimental administration of pancreatin, single cells from the myocardium, and scraps of epithehlial cells, etc., were found in the capillaries of the lungs, liver and a few other organs. This cell embolism is probably a premortal occurrence as similar cells injected into the veins promptly disappear.

SHOULDER-HUMERO-SCAPULA ARTICULATION.

SOME OF THE COMPLICATIONS AND SEQUELAE ATTENDING OR FOLLOWING REDUCIBLE OR IRREDUCIBLE DISLOCATIONS, WITH A BRIEF REVIEW OF THE VARIOUS MODERN OPERATIVE MEASURES NOW EMPLOYED FOR THEIR TREATMENT.

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(Continued from page 734.)

THE ROENTGEN RAY AND POSITIVE DIAGNOSIS IN HUMERO-SCAPULA DISLOCATIONS OR FRACTURE-DISLOCATIONS.

The place of the skiagraph in the diagnosis of various complex or obscure shoulder traumatisms, especially those involving the humero-scapula joint, we would suppose by this time would be determined.

If those shadow pictures could only always be relied on, a vast and definite advance would have been made; the outlines depicted on the camera would at once, in many cases, determine the futility of attempting reduction by the ordinary means.

Simultaneous fracture of the greater tuberosity, the outer head of the humerus, sometimes complicates humero-scapula luxation. Stimson says it can not always be detected; fracture through the base of the glenoid fossa, with detachment or clipping off its superior or inferior surface; a fracture through the anatomic neck, or the acromian process above may complicate this luxation, and often can not be detected by manipulation or other outward signs. These should always come well into view with the Roentgen rays.

Some years ago in Europe, I saw an eminent surgeon, after every description of manipulation and the application of pulleys, entirely fail to reduce a dislocation at the shoulder. Then an arthrotomy was performed when it was found that there had been no dislocation, but a fracture squarely through the anatomic neck; the articular head was in position, while the greater tuberosity, the outer head, was carried far out under the clavicle. Surely, here the Roentgen rays should have clearly set forth the osseous lesion, and spared the patient the great and exhausting violence to which he had been subjected.

But these rays may lead one into no end of pitfalls, as was illustrated in another case witnessed by myself about the same time. A boy of 14 years, with a contracted, shortened lower limb, was brought into the operating-room for the purpose of having a very old hip dislocation reduced. Before operation, a large skiagraph card was passed about the operating theater to the spectators, which showed a shadowy, undefined, circular outline suggestive of the displaced head on the dorsum-ilii, besides the acetabulum seemed to show a marked hollow. But the surgeon, a man of large experience, before opening down on the tissues, dwelt briefly on the uncertainty of this new diagnostic aid. On section the disappointment was great when it was found that every trace of the femoral head had been resorbed, and the acetabular cavity was flat and smooth, with nothing evident even suggesting a depression.

In Helferich's late work on "Fractures and Dislocations," although several cuts of the Roentgen ray shadow-pictures figure through it, the author is mute on this expedient in diagnosis, and says that "without the use of anesthetics it is often impossible to diagnose fracture." And Stimson, in his latest edition, affirms that "the X-rays aided by the fluoroscope rarely give practically any important information in fractures which can not be obtained without their aid."

Oberst and Braunn, at the German Surgical Congress, 1897, pointed out that although the Roentgen rays showed that very many fractures united with very poor coaptation, still these limbs recovered with full function and strength. Beck declares that "Since the Roentgen rays came into use, methods for treatment of fractures and dislocations have been revolutionized[1]" and, "Nothing," says another, "may inculpate or exculpate a surgeon more than a good skiagraph." (Clayton Parkhill, Denver, Colo.) It does not appear clear, just yet at all events, where the "revolution" comes in, nor can any one of experience for a moment endorse the extreme views of the western surgeon.

Dr. J. W. White summarizes the subject, by doubting whether these rays give us a fuller understanding of fractures in general, suggest more efficient treatment, or modify the rules governing treatment either of fractures generally or any special fracture. He denies that the patient has the right to demand of the medical attendant a skiagraph of his fracture, and he adds, "until a much larger number of cases has been observed and the clinical results have been compared, the routine use of the skiagraph may be more harmful than useful[2]."

No one can dispute the assistance derived from the X-rays in many types of fracture and dislocation, but let us not overlook the fact that, if not utilized by a skilled hand in the photography, and interpreted with caution and discrimination, they may work an incalculable mischief and may involve practitioners in trouble in every direction. My experience has been that no two or more X-ray photographers will produce a shadow-picture with the *same* general characters; i. e., one will skiagraph a fracture or two for you, another with the same limb perchance, will show a perfect continuity. "Variations in the visual acuity," as an editorial writer in a recent issue of THE JOURNAL put it, "is necessary for the interpretation of the shadow." The "correct reading" (?) of the pictures, to my mind, is all moonshine to those of ordinary vision.

In shoulder luxations the rays will be of much help where these are complicated with fractures; but in those cases where the displacement is obvious, to magnify their importance and to criticise a practitioner for failing to employ them is to inflict a wrong. A case is in point:

History of Case.—The patient, 18 months old, was a hearty, vigorous, male child, brought to me by the father, accompanied by the physician who delivered the mother. The infant was said to have been about 10 lbs. weight at birth, and labor was non-instrumental and moderately easy. It was noticed a few days after birth that the child failed to use the right hand. This condition continued until the child was brought to me. At this time there was no wasting of the limb. There was some movement about the shoulder and arm, but none below the elbow. Sensation as tested everywhere appeared normal. The muscles of the forearm reacted feebly to galvanism; heat of parts normal; good circulation.

It was my belief that the arm was palsied through contusion or over-tension of the brachial plexus, and that the chances of recovering motor power were good, as I had seen several similar cases all recover.

There was an obvious drooping of the whole shoulder, most marked at the tip of the acromian process, from a relaxation of the deltoid muscle. But the humero-scapula joint was normal in every particular.

My advice was to employ the feeble current, massage,

and bathe the limb. This was followed by some improvement, but too slow for the anxious parents who, after a few months, took the child to a distinguished orthopedic surgeon who gave practically the same opinion, and advised the same directions for treatment. After a year, there being but slight improvement, the child was taken to another surgeon, who at once skiagraphed the shoulder and pronounced the lesion an "unreduced dislocation of the shoulder, produced by the physician at birth," and proceeded to reduce (?) it.

This diagnosis was a harsh reflection on the physician, who it appears, in no measure manipulated the infant during delivery, and on myself and the other practitioner; though the family was jubilant that the "oversight was discovered and the bone reduced."

It certainly is our bounden duty to avail ourselves of every possible means at our command in making a diagnosis, but let us go slowly in forming definite conclusions from skiagraphy, and in shoulder traumatisms never rely on its revelations without the confirmatory evidence of other definite signs.

THE TIME WHEN REDUCTION SHOULD BE UNDERTAKEN.

With a dislocation so prone to complications and troublesome sequelæ, it is obvious that we should resort to every prophylactic expedient which may prevent or minimize them; and here, the question as to the *time* when reduction may be effected with the least violence to the structures is an important one.

Most authorities advise immediate reduction; or as soon after injury as possible. My own experience has led me to doubt the expediency of this course. Boyer declared that inflammatory changes in the peri-articular tissues seldom followed dislocation for several days. This, he added, was notably the case when luxation succeeded from great violence; as immediately after, a state of "stupor" followed which greatly diminished the sensibility of the articulation. However this may be, we know from clinical observations that many times when our efforts at reduction have been futile, by allowing the patient to rest for some hours the bone will easily slip into position by gentle manipulation; moreover, Dr. Lund of the Boston City Hospital says that a dislocation of the shoulder of less than two weeks' duration is as easily reduced as a fresh one.

PULMONARY ANESTHETICS IN REDUCTION.

My experience has long since convinced me that pulmonary anesthetics are seldom required in the reduction of humero-scapula luxations. That they "relax" anything is a fallacy: in nervous intractable subjects they may be permitted for obtunding pain but no other purpose.

Moreover, once a young woman nearly lost her life in my hands while under an anesthetic for shoulder reduction; and experience with records confirms their special dangers here. Kocher recommends, when possible, to dispense with anesthetics in these cases.

Bardenheuer has collected 134 fatal cases under anesthetics administered during efforts at reduction; and Parkham emphasizes the importance of always endeavoring to dispense with them in the above class of cases.

THE CHARACTER AND FREQUENCY OF SEVERE COMPLICATING SHOULDER DISLOCATIONS, AND THEIR MANAGEMENT BY MODERN METHODS.

Before the writer undertook his present task, he made a careful perusal of all the literature on the subject of shoulder dislocations, contributed from various sources which were published in the ten years preceding 1899.

The main object in view was to note any radical departure in the diagnosis, or the treatment of such conditions, their complications and sequelæ, by the aids placed in the hands of surgeons by the discovery of Roentgen, through antiseptics, or the researches of Ollier. My investigation in this direction, however, was somewhat disappointing, as it was found that, with the exception of the able and exhaustive contribution of Dr. Souchon, there had been little written on the subject of shoulder dislocations during this decade. There has been little added to the subject beyond what may be found in Stimson's master work on dislocations.

The most notable addition to the treatment has been undoubtedly McBurney's device for reduction of fracture dislocations. It was found that surgeons are not agreed on the utility of arthrotomy in irreducible or relapsing cases, nor on the mode of operating when that procedure is undertaken.

On complications or sequelæ, in the last decade, but little has been published.

It is therefore intended here to very briefly invite attention particularly to the consideration of those structural changes or disorganizations coincident with, or consecutive to, humero-scapular luxations; besides, to some of the more notable sequelæ, with the hope that it may stimulate others more capable, to further advance this important phase of the subject: briefly noting in conclusion, the present status of operative methods for dealing with the irreducible or recurring shoulder dislocations.

DISORGANIZATION OF STRUCTURE.—THE PATHOLOGIC CONDITIONS PRESENT IN COMPLICATED DISLOCATIONS.

Immediately after a dislocation has occurred, we have to deal with morbid anatomy, with over-tension, contusion or laceration of the soft parts, displaced or fractured bone. Pathologic changes have not occurred until reaction has set in, until constitution shock, or what Boyer designated "local torpor" of the arthritic structures, has passed off. The severity, the degree and quality of these will depend: 1, on the constitutional state; 2, the extent and character of complications; 3, the degree of force employed in reduction. These changes are of a primary order when *restitutio ad integrum* follows early reduction, and when the nerves and blood-vessels have escaped serious damage.

Pathologic changes of a *consecutive* character follow in various types of irreducible or relapsing dislocation. These impair the nutrition of the joint and limb, and lead to degeneration of structure.

SEVERE INJURIES OF THE MUSCLES.

In all the shoulder luxations, the *first* and the greatest violence is sustained by the muscular structures.

In complicated cases the tendons may be torn from their attachments to the bones, their sheaths are lacerated, they may have been over-stretched or severely crushed; intermuscular or interstitial hemorrhages may occur later, giving trouble through provoking adhesions. Marked muscular atrophy of all the muscles of the shoulder is one of the most serious sequelæ of severe dislocations. Percival Pott long since emphasized the importance of muscular changes in dislocations which resisted reduction. He correctly observed that "the connecting ligaments afford only moderate retentive action, in this joint; but its stability quite wholly depends on the tendons and muscles acting on it; and the muscles require our first and greatest attention." Follin dwells at length on damage to the muscle structures in dislocations, and violent wrenches of the articulations; on the inflammatory infiltration, the resulting induration, con-

tracture, and fibrous bands of new tissue welding their sheath together. In certain cases of painful, useless arms resulting from shoulder dislocation where reduction is possible but retention impossible, the most melancholy feature is the quite complete disappearance of the deltoid. It had suffered irretrievable injury at the time of dislocation, or by excessive violence in efforts at reduction.

SERIOUS INJURIES OF THE BLOOD-VESSELS.

Lesions of the large blood trunks, of such a character as to structurally destroy them, and hence imperil the limb, have been recorded in the past, in connection with shoulder dislocation; but we have no instance on record where it constituted an essential part of the morbid anatomy of a luxation; as in every instance recorded the great blood trunks only gave way under the application of violent force in reduction, in nearly all, old cases. Serious vascular injury is the risk we must always take when we employ great force in the reduction of a dislocated arm. This is an accident which, it appears, no skill or experience can fortify us against. Lord Lister gives a graphic description of a case ending mortally, in his own hands. His patient was a man 58 years old, whose shoulder was dislocated for eight weeks. First manipulation was tried; this failing, the pulleys were employed and failed to effect reduction. The patient was about to be set aside for another trial, later, when there was discovered a large throbbing tumor in the axilla. The lacerated axillary artery was now exposed and ligated, but the man sank three hours later. The records of the autopsy stated that there were adhesions of the axillary artery with the head of the humerus; something which is certainly an anatomic impossibility, unless the tendon of the subscapularis was torn away.

In Desault's case the patient was 60, and very muscular, great force being necessary to reduce the arm. A vast axillary tumor appeared after reduction. For a moment Desault was quite distracted, but not being certain that an aneurysm was present, he ordered a bandage applied. By moderate pressure the tumor slowly vanished. Probably the axillary vein was opened.

Dr. A. B. Strong, Chicago, records an instance of operative rupture of the axillary artery in shoulder dislocation. His patient was a man of 54, the dislocation of one year's duration. The case had resisted reduction before the patient entered the hospital. The surgeon undertook reduction by passing a twisted sheet over his neck and shoulders and then securing the patient's arm with one end, above the elbow. Then the heel was crowded into the axilla. On the fourth effort, the Doctor writes, "a deluge of blood gushed through a rent in the integument which was as big as a fist." Reduction failed, and death followed thirty-six hours later. On autopsy, both the axillary artery and vein were found ruptured. The capsule was greatly thickened.

Körte, of Berlin, has collected seventeen cases of rupture of large blood-vessels in the axilla after violent efforts at replacement in ancient luxations at the shoulder; and Prof. A. L. Stimson collected the records of a much greater number, viz., forty-four cases of injury to the blood-vessels of the axilla caused by efforts to reduce dislocated arms; of these, thirty-one were fatal.[4] In all this class of grave injury to the vessels with few exceptions, we find that the patients were advanced in age and the dislocations were of more than a month's standing. Without doubt atheromatous changes had begun, and the elasticity of the vessels had diminished. They belong to that class in which our efforts should be restricted to manipulation without the employment of violent counter force in the axilla. We know that a healthy artery can sustain, with impunity, a great degree of violence; of tension, torsion, or pressure; but that the veins are endowed with less resistance and are much more vulnerable. Hence, why do we so often find evidence of phlebitic inflammation in the axilla after reduction, with sometimes wide areas of a deep ecchymosis in others from rupture or contusion of the axillary vein, or the venæ comites of the subscapular artery?

Dupuytren attached considerable importance to the site of these ecchymotic patches when they were formed through a traumatism. Thus, he thought that when the sanguineous extravasation was in the inner and upper aspect of the arm it pointed to a dislocation, and when posteriorly, to a fracture.

The malnutrition of the structures investing a joint, is, without question, an important factor in the etiology of many of those sad cases of general muscular atrophy of the scapula muscles seen after reduction. It is therefore important in all cases to dispense with great violence in attempting reduction, until the simpler or less harmful expedients have been faithfully tried. The heel in the axilla is much like Kocher's method in one respect, viz., it will generally reduce the bone or damage something. Like it, it exercises a powerful leverage; but Kocher's method will often fracture the humerus while Cooper's plan endangers the large blood trunks, which are caught between the heel and the invested head of the humerus and crushed violently, with each effort at reduction.

NERVE LESIONS IN SHOULDER DISLOCATIONS.

Experimental research as well as clinical observations prove that of all the organized structures concerned in the processes of life and the motor mechanism of the body, the nerve is the last to part with its vitality; and besides, anatomically we know that at the shoulder the three large dense nerve cords of the brachial plexus, along with animating the arm, likewise serve as powerful accessory stays in holding the head of the humerus up against the glenoid fossa.

It, therefore, necessarily follows that when the proximal end of the humerus is suddenly and violently projected far out of its cavern under the acromian vault, either downward or forward, these nerve cords must sustain varying degrees of injury from over-tension, laceration, or contusion, and that this may sometimes constitute one of the most painful and serious sequelæ of luxation.

But the nerve cords in the axilla stand off from the scapulo-humeral articulation, and are separated from the articular head by the broad tendon of the subscapularis and the thick capsule; moreover, they lie lax in a loose atmosphere of connective tissue, thereby being permitted a freedom of action not seen in the nerve trunks at any other major articulation. But nerve tissue sustains the effects of force with remarkable impunity; as, for example, has been demonstrated by Tillaux, who has shown that each of the brachial cords could sustain a weight nearly equal to one hundred pounds; and Rombery has stretched the ulnar and the median nerves from 15 to 20 cm. without serious impairment of function following. We have good reasons to believe that the nerves sustain more frequent and serious damage from over-tension than from direct contusion in shoulder injuries; more frequent harm too, from great violence in efforts at reduction than the causes producing the displacement; although Mitchell Banks, Jonathan Hutch-

inson, Paget, Ross, Laflaire, Symmonds, and Morrison in narrating the morbid anatomy of shoulder luxations, have reported cases of rupture of the brachial plexus from wrenches or falls and blows on the shoulder, without either dislocation or fracture. In all, complete and permanent paralysis followed. Hence they warn us of the importance of always examining into the state of nerve function before we apply force in the reduction of a dislocation.

But, Mr. Bolby questions whether there was complete rupture in all these cases, even though eye symptoms were present; as those ocular symptoms might ensue from injury of the cervical sympathetic without rupture of the brachial cords. Besides, he adds, "these symptoms might be absent in rupture of the nerves anterior to the cilio-spiral branches of the sympathetic."

Nélaton and others have pointed out the grave injuries which the nerves may sustain during shoulder reduction by their compression between the articular head and the first rib. In Le Bret's case, a young soldier with a shoulder dislocated twenty-four hours, just as reduction occurred, a sensation of something giving way or tearing was felt in the axillary space. Total paralysis followed.

Bolby has recorded four similar cases, and Desault two.

In Mr. Bolby's comprehensive monograph on nerve traumatisms, the consideration of this phase of the subject is given considerable space; but, unfortunately, in neither his work nor in any other published is there any record of the morbid anatomy as found on post-mortem, immediately after injury.

Dr. Weir Mitchell has recorded a considerable number of nerve injuries encountered in military hospitals, and believes that at the shoulder contusion was responsible for injury to the brachial plexus, or its branches, rather than tension or torsion. But he evidently confounds injury to the muscular elements with subsequent crippling of the arm for true paralysis, as he cited as an illustration of immdiate paralysis following a contusion, the loss of power in the arm succeeding a violent blow over the deltoid, through injury to the circumflex nerve.

But, although considerable reduction in the range of brachial movement does follow such a blow, there is certainly no true paralysis; nor have we any proof that the circumflex has suffered damage, because structures supplied, other than the deltoid, quite entirely escape any palsied condition. Dr. Mitchell believed that the atrophy of the deltoid and other muscles sometimes seen in shoulder dislocations is dependent on injury of the musculospiral nerve; while Hamilton, De Bout, and other surgeons attributed these atrophies to contusion, over-stretching, or laceration of the muscular tissues.

My own experience is entirely in accord with the latter view. This derives further support from the fact that, in nearly all those cases of stiffness and muscular wasting after reduction, the parts are *hyperesthesic*, but muscular power is wanting. The deltoid muscle quite alone retains the articular head of the humerus in position, and limits nearly all its movements; hence, myitis, rheumatic or traumatic, involving its parenchymatous elements, cripples its power as a muscle, a tendon and a ligament, the triple function inherent to it.

In a surgical practice of nearly twenty years, in which dislocations of the shoulder, reducible, irreducible, recurrent, and complicated, were fairly numerous, no single instance has come under my care which would tend to prove that neural rather than muscular injury was responsible for the various types of any trophic changes encountered, except in cases of rupture of the brachial plexus. There were several, however, in which neurotic or hysteric tendencies made their impress on the processes of repair.

THE ROLE OF THE CONSTITUTIONAL NEUROSES.

There is no class of cases which will oftener test the skill and judgment of the surgeon than those of dystrophic arthropathies of the shoulder, succeeding traumatisms. This is notably the case in females of a neurotic taint, in whom monarticular rheumatoid arthritis is so commonly witnessed. In one a shoulder is luxated or subluxated, and recovery of full function follows; while in another, rigidity and wasting of the muscles follow, with areas of the most acute hyperesthesia.

Pitres has noted this, and observes that in some individuals a traumatism will provoke hysteric manifestations. Gosslin and Perregon describe a class of traumatic arthritis, non-hysteric, of a very persistent character, in which we sometimes find lesions, but the suffering is out of all proportion to them. In these, they add, there is a fixed pain quite peculiar to the female.

It is somewhat remarkable that, with an articulation provided with so large a synovial investment as the humero-scapula joint and its accessory synovial sacs, as the subscapula and subacromian bursæ, authors have given them so little notice, as important factors when involved by inflammation, after luxation. The importance of their lesions is, without doubt, of very considerable importance in many types of arthritis encountered after various luxations.

Sir Benjamin Brodie was deeply imbued with a conviction that the hysteric arthralgias were a frequent sequel of joint injuries, which, according to him, constituted four-fifths of those we meet with in the upper classes. Briquet took an opposite view. Chipault never saw a dozen cases. He regards their diagnosis as peculiarly difficult and delicate. Charcot declared that the shoulder-joint was seldom involved, but when it was, the effect was generally of long duration, lasting from six months to three or four years.

In a considerable proportion of these so-called "hysterical" neuralgias of the shoulder, evolved subsequent to luxation, there is a tangible pathologic basis, the structures involved being the fibroserous, so extensive in area at the shoulder; quite insensible in the normal state, but the seat of the most acute and persistent pain when seized on by inflammation.

In the absence of paralysis we are not justified in assuming anything approaching a grave neural lesion after a luxation. But that the nutrition of the limb may be seriously impaired, through a participation of the trophic nerves, the vasomotor system, and that there is some remote and inexplicable relation between the neuro-arthroses and the sensorium, clinical evidence abundantly demonstrates.

It might seem, however, rational to suspect nerve lesion or pathologic changes in the nerves succeeding shoulder injury, because pain, cutaneous hyperesthesia, and feeble vascular action are present in most of those cases, and because we often find pseudo-ankylosis, muscular rigidity and wasting.

We have evidence here, however, that the neural phenomena are usually consecutive and not primary, and are a consequence and not a cause, for the reason that when it is practicable to overcome the peri-arthritic and intermuscular adhesions and liberate the joint, these promptly vanish.

(To be continued.)

Therapeutics.

Treatment of Diarrhea.

J. T. Moore, in *Merck's Archives* for February, says that in the majority of diarrheas, a process of fermentation is to be found which has had its beginning in indigestion from improper food or improper feeding, the temperature being much aggravated by environments, particularly temperature range. These cases, if not given early attention, frequently pass into an inflammatory condition. But it is the diarrheas of a bactericidal character in which the fermentative processes are most intense and pathologic changes most marked. The great danger with diarrheas is the slight importance attached to them by the laity, in their beginning. The stoppage of food and the administration of soluble antiseptics at the outset, would insure prompt recovery in most cases. The idea is extant among mothers that a little diarrhea is the proper thing for teething babies, and a physician is not called until the symptoms are grave and the seat of inflammation is in the lower bowel, out of the reach of soluble antiseptics. The drugs that have been relied on in the cases last mentioned have been sodium benzoate, bismuth subnitrate, resorcin and the salicylates.

His attention has recently been called to tannalbin, a new product which was said to be insoluble in acid media. At first he only looked for astringent and non-irritating properties and used it alternately with various antiseptics. Subsequent results led him to try tannalbin alone, when he was astonished to find that clinical results were equally as good as when combined with antiseptics. He gives a report of cases of several distinct types of diarrhea, in which tannalbin was used with surprisingly good results, and he says that from this clinical experience he believes the drug to be as near a specific in selected cases of diarrhea as quinin is for malaria. He has also used it with good effect in typhoid characterized by excessive discharges and finds it a most satisfactory remedy in infectious diseases.

Treatment of Enuresis.

Unless the case be discovered and its removal effected the treatment of this disease must then be empirical.

Atonic conditions, in children as well as in adults, often lie at the foundation of the lack of control over the passage of urine, and, in these cases, out-door exercise should be advised and a carefully selected diet prescribed for its nutritiousness and digestibility.

Medicinally, the use of ferruginous preparations is indicated. The syrup of the iodid of iron is readily taken by children. The dose is from 3 drops upward, well diluted with water. Jacobi speaks highly of the elixir pepsinæ, bismuthi, et strychninæ of the "National Formulary," in insufficient digestion associated with atony of the stomach; a child of 3 years taking a teaspoonful three times a day.

Incontinence due to weakness of the sphincter muscle is best relieved by ascending doses of strychnin or the tincture of nux vomica.

Douching of the perineum with cold water is advised, or the application of the faradic current, one electrode being placed in the rectum and the other over the perineum in the male and over the mons veneris in the opposite sex. The current is to be gradually increased.

If incontinence is due to hyperesthesia of the mucous membrane or irritability of the bladder the remedy indicated is belladonna.

Baruch, Watson and other observers bear testimony to the efficiency of this drug in the treatment of the nocturnal form of incontinence. Both belladonna and atropin are tolerated in much larger doses by children, in proportion to their size or age, than by adults.

In many cases a single evening dose of the extract of belladonna—gr. ¼ to ¾ to 1—or of the sulphate of atropin—gr. 1/100 to 1/75—answers to an unexpected degree, according to Jacobi. In most cases, however, belladonna or its alkaloid must be pushed to the extreme limit before an impression is made on the disease.

Habit, which Tyson mentions as sometimes the cause of enuresis in children, may be corrected, as suggested by this author, by encouraging the cautious practice of holding the water.

Masturbation, phimosis, adherent prepuce, rectal affections, etc., must receive appropriate treatment, after which the incontinence of urine, if it persists, will demand attention.

Sir Henry Thompson strongly advocates the application of nitrate of silver to the urethra, whether in the male or the female. He states that the use of a flexible bougie, small, of course, for children, passed daily, and removed in a minute or so, is sometimes successful. If this fails, the injection, by means of a sufficiently long tube, of the nitrate of silver solution to the prostatic portion of the urethra and neck of the bladder is a remedy of no mean value. For young women up to the age of 18 or 20 in whom this malady still exists, Thompson has found this treatment almost invariably successful. It should be applied immediately after the bladder is emptied, in quantity, say of a dram, and of a minimum strength of 10 grains to the ounce, up to treble that strength, if necessary for subsequent application. Enough should be employed to produce smarting, which should continue for a day or so. A week or two should elapse between each application.

Some authors advise blistering the perineum, others the use of the actual cautery, touching the same at several points around the anus. J. William White and Edward Martin state that when a habit of nocturnal incontinence is due originally to carelessness—the child, though awakened by the desire to urinate, prefers to wet the bed to getting up—such cases may be cured by having the patient waked at about 1 or 2 in the morning, or at an hour before the habitual time of involuntary micturition, and made to empty the bladder.

Among other remedies employed in this affection are antipyrin, rhus toxicodendron, potassium bromid, monobromid of camphor, and ergot.

—*Lewis H. Adler, Jr., in Sajous' Annual.*

DR. H. B. CARPENTER, in a recent communication, says that fluid extract of rhus aromatica, 2 to 15 drops three times a day, has been used with good results in incontinence or urine in children. If the urine is acid and high colored, it is well to begin the treatment by giving an alkaline mixture, as

℞. Potassii citratis.....3ii
Spt. etheris nitrosi.....3iv
Syrupi simp.....3i
Aquæ q. s. ad.....3iii
M. Sig. A teaspoonful in water every two or three hours.

Macalister says: In a number of instances I have had success in using the following modification of a formula originally proposed by Kelaiditis, especially in the purely nervous form:

℞. Cupri sulphat. ammoniat.....gr. vi
Liquoris ammoniæ.....gtt. x
Aquæ destil.....3i
M. Sig. From one to six drops, according to age, in water morning and night.

The following formulæ are also recommended by Macalister:

℞. Ext. rhois aromaticæ fluidi.....3iiss
Ext. ergotæ fluidi.....3ss
Ext. belladonæ fluidi.....3ss
Strychninæ sulphat.....gr. 1/4
Syr. aurantii cort., q. s., ad.....3iv
M. Sig. Teaspoonful four times daily.

The quantity of belladonna may be increased, and if this fails after a fair trial, increasing doses of atropin may be used.

The following prescriptions for enuresis have been recommended by various physicians:

FOR AN ADULT.

℞. Tinct. ferri chloridi
Tinct. nucis vomicæ, āā.....3ss
Tinct. cantharidis.....3vi
Syr. simplicis.....3ii
Aquæ, q. s., ad.....3vi
M. Sig. Teaspoonful three times a day.

—*Hollister.*

FOR MIDDLE-AGED AND OLD WOMEN.

℞. Tinct. cantharidis.....m. ii
Tinct. hyoscyami.....m. v
Aquæ destil.....3x
M. Fiat haustus. Repeat four times daily.
—*Gregory.*

℞. Strychninæ.....gr. i
Pulv. cantharidis.....gr. ii
Morphinæ sulph.....gr. iss
Ferri pulv.....gr. xx
M. et ft. pil. No. xl. Sig. One thrice daily.
—*S. D. Gross.*

℞. Ext. jaborandi fluidi
Ext. belladonnæ fluidi, āā.....3i
Ext. tritici repentis fluidi.....℥ss
Ext. ergotæ fluidi
Ext. rhois aromaticæ, āā.....℥i
Aquæ.....℥ss
M. Sig. One teaspoonful thrice daily.
—*S. W. Armitage.*

Thiosinamin in Dermatology.

In a report on dermatology, J. T. Bowen, in the *Boston Medical and Surgical Journal*, Feb. 22, 1900, gives Unna's experiments with thiosinamin soaps and plasters. Hebra had observed that this substance injected subcutaneously had a marked action on the lupous process, particularly the scar tissue. The latter was rendered pliable so that joints which had been immovable by contraction of surrounding scars recovered complete motion.

The substance being insoluble in water and injections of alcohol solution being painful, Unna used it in the form of a soap, in 5, 10, and 20 per cent. strength, and spread on plaster muslin, in the treatment of fibrous tumors of various kinds, keloids, leprous and syphilitic lesions, and scarring from smallpox. He found them much more effective in the treatment of these conditions than his former treatment had been; this had consisted of massage combined with mercurial plaster, salicylic acid plaster muslins, etc. The soap was more irritating than the plasters, so these were used in the majority of instances. With these plasters no irritation nor pain was experienced, as had been the case with injections. In the treatment of smallpox scars, a mask of the thiosinamin plaster was worn at night. The parts of the body free from hair and protected by clothing were benefited most by a plaster worn constantly. The soap is more effective on the face, hands and scalp, it being allowed to dry on. Severe cases may be treated by the plaster at night and the soap by day. This treatment may be alternated with mercurial plasters and massage. Unna believes that thiosinamin is a distinct advance in the therapeutic treatment of fibrous cicatricial deformities, which are regarded by most practitioners as practically hopeless.

Value of Hydrogen Peroxid.

A number of French leaders in the profession have recently been extolling the great value of hydrogen peroxid as a disinfectant. It is especially powerful in lesions due to the presence of anaërobic bacteria. Championnière recommends it warmly for uterine injections—a 10 per cent. solution—after septic abortion, Terrier for diffuse phlegmons, Albarran for infiltration of urine with consecutive gangrene, Jalaguier for suppurating appendicitis and Quénu for perirectal abscesses, in all which these confrères have found it extremely effective. Mendel injects it into the trachea in the treatment of affections of the upper air-passages: 12 c.c. twice a day. In the decomposition of the amount about 400 c.c. of nascent oxygen are liberated. The fluid passing down the trachea does not produce any irritation, and its effects are evident in increased appetite, easier respiration and improvement in general health, although it is not a specific for lung troubles.

Bruises.

The following prescription must not be employed if the skin is broken. These should be dressed antiseptically, and hot or cold applications made.

℞. Tinct. opii
Liquoris plumbi subacetatis, āā.....℥i
Aquæ destil., q. s., ad.....℥xvi
M. Apply freely on old soft rags or lint.
—*Breninger.*

Medicolegal.

Health Inspectors are "Officers."—In Patton vs. Board of Health of City and County of San Francisco, the Supreme Court of California holds that health inspectors appointed by said Board are "officers" who hold during the pleasure of the Board, the legislature having failed to declare the term of the office.

Slight Misstatement by Physician Not Fatal.—A slight misstatement as to the cause of the injury, mistakenly made to the insurance company in behalf of the insured by the physician who attended him, the Supreme Court of Kansas holds, in Wildey Casualty Company vs. Sheppard, will not prevent the insured showing the actual facts in an action brought by him to recover upon a contract of accident insurance.

Loss of Weight May Be Shown.—Evidence of loss of weight by a plaintiff in a personal injury case, the Court of Civil Appeals of Texas holds, in San Antonio & Aransas Pass Railway Company vs. Weigers, is admissible, if it affects in any measure the decision of other issues, as for example tends to establish a serious physical condition produced by the injuries alleged to have been inflicted by the defendant, and this notwithstanding that the pleadings may not make the loss of weight a specific element of damage.

Under Interstate and Texas Antitrust Law.—By virtue of the transaction being one of interstate commerce, the Court of Civil Appeals of Texas holds that a foreign corporation selling, say vaccin, from Chicago, to a person in Texas, can maintain an action for the price thereof without its having obtained a permit to do business in Texas in compliance with the state statutes. But, under the Texas antitrust law, it holds, Pasteur Vaccine Company vs. Burkey, stipulations in the contract providing that the purchaser shall have the exclusive sale of the vaccin within certain territory in that state and fixing prices thereon are void, and can not be enforced.

Admissible One-side Hypothetical Questions.—The principle involved when it ruled that error can not be predicated on the giving of an answer by an insanity expert to a hypothetical question based on the state's testimony, where it is afterward made to appear that hypothetical questions are put by both the state and the defendant's counsel, submitting thereby to the expert the testimony upon the entire case, is by the Court of Criminal Appeals of Texas practically reaffirmed and applied to an entirely different hypothetical question, in the murder case of Squires vs. State, where the defendant's attorney first asked a medical expert a hypothetical question and the district attorney thereafter asked him a somewhat different one, apparently sustained by the evidence.

Act of February 8, 1897, Constitutional.—The act of Congress of Feb. 8, 1897, making it unlawful for any person to deposit with any express company or other common carrier for carriage from one state or territory of the United States or the District of Columbia to any other state or territory of the United States or the District of Columbia any article or thing assigned or intended for the prevention of conception, the United States District Court in California holds constitutional, and not subject to the objection that this provision is an attempt to legislate on a matter to which the police power of the state extends, and over which it has exclusive jurisdiction. It further holds, in United States vs. Popper, an indictment sufficient in describing the article in question as one contained in a certain package and being an article designed and intended for the prevention of conception, without stating whether it was an instrument or a drug in liquid or solid form, the indictment giving the place and the date of its deposit by the defendant with a certain express company and the name of the person and place to which it was addressed.

As to Damages for Mental Anguish.—In reasserting its adherence to the doctrine that damages may be recovered for mental anguish and injured feelings unaccompanied with physical injury, the Court of Appeals of Kentucky says, in

Western Union Telegraph Company vs. Van Cleave, that a recovery in this class of cases can likewise be had under the decisions of the states of Texas, Alabama, Indiana, Iowa, North Carolina, and Tennessee, though most of the state courts hold otherwise. But on the appeal of this same company vs. Steinbergen, the court points out that none of the courts appear to have extended the rule beyond the nearest degrees of blood relationship. And it holds that a recovery must therefore be denied to a father-in-law because of the absence of his son-in-law at the death of his mother-in-law. And in the companion case of Davidson vs. the Company, it holds, for the same reasons, that a son-in-law can not maintain an action for damages for mental anguish occasioned by not being able to attend his mother-in-law in her last moments. It says here that the law does not presume from this relationship alone such ties of affection as will support such an action.

Medical Experts in Case Against Dentist.—A dentist having been sued for damages for alleged malpractice in using unclean instruments, the Supreme Court of Kansas sees no error in questions intended to secure the judgment of persons skilled in medicine and its effects as to the likelihood of the plaintiff's affliction having been caused by the defendant's failure to sterilize his dental instruments, although from the hypothetical questions propounded to them they could merely give their best judgment as to the cause of the plaintiff's disability. The contention of counsel for the defendant that the physicians should have been required to state with certainty the cause of the paintiff's condition after a hypothetical case had been submitted to them, it holds, would be supposing an exactness in medical science to which its most learned followers have not yet attained. In other words, it holds that medical experts, in response to hypothetical questions, are not required to answer with certainty, but may give their opinions as to the probable result of a given treatment or operation. In propounding such questions, it further says counsel may base the same on testimony which is weak and inconclusive, and on testimony of one or more witnesses, or on inferences properly deducible therefrom. It is not necessary that the exact words of witnesses be used in propounding the questions. But an objection that a hypothetical assumes facts not proved, ought to point out with particularity the facts which are claimed to be untruly stated. Judgment for $2000 for the plaintiff, Roark vs. Greeno, was affirmed.

Will to Attending Physician's Wife.—In the Keefe's will case, the surrogate, after a hearing, directed a revocation of a decree admitting the will to probate as a will of personal property, on the ground that its execution was procured by fraud, artifices, circumvention, and undue and improper influences practiced against and exerted upon the testator by or at the instigation of his only attending physician at the time, and by the physician's wife. But the fact that the doctor, whose wife was made the principal beneficiary and largely in his stead, for three days had acted as attending physician to the testator, a bachelor, and had made him daily professional visits, the appellate division, third department, Supreme Court of New York holds, could have little or no weight in creating a conclusion that fraud of undue influence was practiced. It says that the long-existing intimacy was not thereby increased. Nothing was added to the confidential relations. It showed only a reliance on the doctor's professional skill. There was here no weak mind to operate on, no habits shown of reliance on the doctor's advice in matters outside of his professional skill. No importunities were shown; no dominant will in the physician; no fear on the part of the testator. This soil it declares altogether too thin to grow a presumption of wrongdoing on, or to support even a healthy suspicion. And the decree of revocation is reversed.

Warranty of Horse for Use by Physician.—A physician set up, in an action which he brought to recover damages for breach of warranty, that a horse he had bought was warranted on the sale to him as sound, kind, true, gentle, quiet in harness, and suitable for use by him in his profession as a physician to drive in harness as a carriage horse. The damages which he sought to recover were for injuries to his person and his vehicle, arising from the kicking, bolting, and running away of the horse. The question of damage in the impaired value of the animal was substantially eliminated from the case by a resale of the horse by the physician to the original seller, which was accomplished without a relinquishment of the damages to his person and property, by the viciousness of the horse, here claimed. Now, in general, it is held, the measure of damages in an action for breach of warranty is the difference between the value which the thing sold would have had at the time of the sale, if it had been sound, or corresponding to the warranty, and its actual value with the defect. But where an article is warranted fit for a particular purpose, the purchaser can recover the damages caused by an attempt to use it for that purpose. So the appellate division, second department, Supreme Court of New York holds, Bruce vs. Fiss, Doerr & Carroll Horse Company, that the doctor was in this case entitled to recover damages for the injury done to the vehicle and its occupant or occupants on the first occasion. But when he made a second experiment with the horse it holds that he did so at his own risk.

Allows Damages for Injury from Fright.—Based on testimony tending to show that a serious nervous affection, said to be traumatic neurasthenia had resulted from a railway accident, and that it might have been caused either by the physical shock or by the mental shock produced by fright, or by both, which the claimant for damages therefor alleged that he had suffered, the Supreme Court of Texas has affirmed a judgment in his favor. As it says, it is generally held that for mental suffering accompanying physical injuries, negligently inflicted, damages may be recovered; but many courts hold that for sickness, impairment of the mental faculties, or physical lesions which merely result from a mental emotion caused by the wrongful act or omission of another, but which do not accompany such mental emotion, no recovery can be had. And this court has itself held that there can be no recovery for mere fright neither attended nor followed by any other injury. But the present decision has increased interest because the court before rendering it apparently took special pains to go carefully over the very numerous authorities on the subject which counsel presented for its consideration. The result, it states, is that it has been unable to discover any substantial difference between the case where an injury has been inflicted through physical agencies and one in which a mental emotion constitutes one of the links in the chain of causes which have led to the injurious result. By some courts, it finds, it is held that a physical injury is not a natural and probable consequence of a mental emotion, however potent, and that the injury in such a case is one not reasonably to be anticipated. Others content themselves by saying, in effect, that a favorable ruling would result in a multiplication of damage suits, and in intolerable and vexatious litigation. Besides, the uncertainty and obscurity attending the facts, and the consequent difficulty of administering the law, are also urged as an objection to allowing damages for such injuries. But to the mind of this court neither of these propositions affords a sufficient reason for denying a recovery in these cases. It points out that it has announced the doctrine that, in order to constitute negligence, the act or omission must be the proximate cause of an injury which, in the light of the attending circumstances, ought to have been foreseen as a natural and probable consequence of such act or omission. But, it goes on, in the light of modern science—nay, in the light of common knowledge, can a court say, as a matter of law, that a strong mental emotion may not produce in the subject bodily or mental injury? May not epilepsy or other nervous disorder or insanity result from fright? May not a miscarriage result from a mental shock? Wherefore, the court concludes that, where a physical injury results from a fright or other mental shock, caused by the wrongful act or omission of another, the injured party is entitled to recover his damages, provided the act or omission is the proximate cause of the injury, and the injury ought, in the light of all the circumstances, to have been foreseen as a natural and probable consequence thereof. To this it adds, Gulf, Colorado & Santa Fe Railroad Company vs. Hayter, that, in its opinion, as a general rule, these questions should be left to the determination of the jury.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

New York Medical Journal, March 17.

1.—*Sheldon Murder Trial: Résumé of Expert Testimony for State. (*Continued.*) Wm. M. Cheesman and Albert H. Hamilton.
2.—*Tinea Favosa. Charles A. Kinch.
3.—*Shock and its Surgical Significance. (*Concluded.*) John H. Rishmiller.
4.— Administration of General Anesthetics. C. Algernon Temple.
5.—*Apomorphin as a Hypnotic. Charles J. Douglas.
6.— Extensive Thrombosis of Lateral Sinus and Internal Jugular Vein Following Acute Suppurative Otitis Media. Ligation of Internal Jugular Vein in its Lower Portion. Secondary Periphlebitis. Recovery. M. D. Lederman.
7.—*So-Called X-Ray Burn. J. Rudis-Jicinsky.
8.—*Varicose Spinal Veins. Unusual Post-Mortem Find. Clarence E. Coon.

Philadelphia Medical Journal, March 17.

9.—*Diseases of Arteries. T. Clifford Allbutt.
10.—*Case of Tetanus, Treated by Subdural Injections of Antitoxin and Hypodermic Injections of Carbolic Acid. Ernest Laplace.
11.—*Spontaneous Disappearance of Senile Cataract, with Report of Case. Walter L. Pyle.
12.— Hairpin Removed from Bladder through No. 12 Kelly's Cystoscope. Hiram N. Vineberg.
13.—*Connective Tissue Tumors of Abdominal Wall. Albert L. Stavely.
14.— Glosso-Labio-Laryngeal Paralysis, with Report of Case. Francis P. Morgan.
15.— Peroneal Type of Progressive Muscular Atrophy. Report of Two Cases. Theodore Diller.
16.— Report of Case of Gangrene of Tonsil. Alexander C. Howe.

Medical News (N. Y.), March 17.

17.—*Significance of Earache in Children. T. H. Halsted.
18.—*Case of Pulmonary Tuberculosis Successfully Treated by Drainage and Iodoform, with Apparent Recovery. Alexander Hugh Ferguson.
19.—*After-Treatment of Fractures and Dislocations. D. N. Eisendrath.
20.—*Instruments and Apparatus Used in Diagnosis and Treatment of Gastric and Intestinal Diseases. H. W. Lincoln.
21.— Tympanomastoiditis. E. Fritz.

Medical Record (N. Y.), March 17.

22.—*Some Points in Therapeutics of Heart Diseases. W. H. Thomson.
23.—*Inoculation Wound of Lues. Charles W. Allen.
24.—*Chorion Epithelium and Decidua in Tubal Gestation. B. S. Talmey.
25.—*Some Remarks on Whooping-Cough as Seen in Dispensary Practice. Walter A. Dunckel.
26.— Six Nephrectomies. F. V. Cantwell.

Boston Medical and Surgical Journal, March 15.

27.—*Injuries about the Shoulder at Birth. J. S. Stone.
28.—*Steam in Treatment of Chronic Hyperplastic and Senile Endometritis, Putrid Abortion and Puerperal Sepsis. F. W. Johnson.

Cincinnati Lancet-Clinic, March 17.

29.—*Tuberculosis: The Dawning. H. H. Spiers.

Annals of Gynecology and Pediatry (Boston), February.

30.—*Supravaginal Hystero-Myomectomy. I. S. Stone.
31.—*Intra-Abdominal Adhesions. A. L. Beahan.
32.—*Meddlesome Gynecology. Herman E. Hayd.
33.—*Oöphorectomy for Gross Functional Nervous Diseases Occurring During Menstruation. D. C. Brockman.
34.— Case of Cystic Teratoma Complicated with Hemorrage. Edw. Hornibrook.
35.— Tolerance of Gravid Uterus with Case. H. C. Young.
36.— Vomiting of Children. A. Nil Filatow.

Journal of Nervous and Mental Disease (N. Y.), March.

37.—*Relation Between Trigeminal Neuralgias and Migraine. James J. Putnam.
38.—*Lesions of Optic Chiasm, with Clinical Report of Three Cases. William M. Leszynsky.
39.— Epileptic Ambulatory Automatism. D. J. McCarthy.

Pediatrics (N. Y.), March 1.

40.—*Report on Cause and Prevention of Infant Mortality. (*Concluded.*) Ernest Wende.
41.—*Case of Alcoholic Cirrhosis of Liver in a Baby. R. Abrahams.
42.—*Short Paper on Rickets. Charles A. Tuttle.
43.—*Vaccination. James W. Guest.
44.— Thomas Knee Splint. Henry Ling Taylor.

Annals of Surgery (N. Y.), March.

45.—*Effects of Intracerebral and Subcutaneous Administration of Tetanic Antitoxin in Tetanus as Observed in Nine Cases. Robert Abbe.
46.—*New Method of Suture in Operation for Inguinal and Other Forms of Hernia. Leonard Freeman.
47.—*Fracture of Neck of Humerus with Dislocation of Upper Fragment, Report of Three Cases Treated by Operation. B. Farquhar Curtis.
48.—*Prolapsus of Rectum in Children. Charles Greene Cumston.
49.— Report of Results Obtained in Treatment of Ununited Fractures with the Parkhill Clamp. Albert L. Bennett.
50.— Case of Acute Osteomyelitis of Femur, with General Systemic Staphylococcus Aureus Infection, Terminating in Recovery. Albert A. Berg.
51.—*Coccygeal Dermoid Fistula. Robert T. Morris.
52.—*Report of Case of Recovery After Gastrectomy for Carcinoma. John Bruce Harvie.
53.— Two Cases of Cicatricial Stricture of the Esophagus Treated by Gastrostomy, the "String" Method, and Permanent Dilatation by Elastic Tubes. B. Farquhar Curtis.

Railway Surgeon (Chicago), March 6.

54.— Normal Saline-Solution. Edward O. Plumbe.
55.— Some Practical X-Ray Advantages. H. A. Leipziger.
56.— Little Things in Surgery. Manning L. Allen.

Yale Medical Journal (New Haven, Conn.), March.

57.—*Conditions of Tuberculous Infection and Their Control. Edward R. Baldwin.
58.—*Simple Fracture into Elbow Joint. Dudley Carleton.
59.—*General Theory of Sensation and Nervous Activity. Benjamin Moore.

Medical Herald (St. Joseph, Mo.), March.

60.— Should the Young Physician Advertise as a Specialist? W. P. Mitchell.
61.— Nose and Throat Affections. C. H. Powell.

Brooklyn Medical Journal, March.

62.—*Diffuse Infective Peritonitis: Observations and Deductions. Charles H. Goodrich.
63.— Extra-Uterine Pregnancy; Operation. Enormous Ventral Hernia, Containing Uterus, Left Tube and Ovary, Bladder and Omentum and Several Feet of Small Intestine; Operation. Normal Pregnancy and Labor. Russell S. Fowler.
64.— Changes Affecting Long Island State Hospital (Formerly the Kings County Lunatic Asylum) Incident to its Transfer to State Administration. Robert M. Elliott.

St. Louis Medical and Surgical Journal, March.

65.— La Grippe. Wm. Henry.
66.— Asthma and Its Treatment. G. A. Gilbert.
67.— Contagion and the Communion Cup. Albert S. Ashmead.

Atlanta Journal-Record of Medicine, March.

68.—*Morphinism. C. C. Stockard.
69.— Nose and Throat Affections. C. H. Powell.
70.—*Medico-Religious Charity: the Guild of Mercy. W. Thornton Parker.
71.—*Therapeutic Application of Blisters. C. D. Hurt.
72.— Diagnosis of Disease of the Stomach. Charles D. Aaron.
73.— Law and Medicine. C. A. F. Lindorme.

Medical Sentinel (Portland, Ore.), February.

74.— Some Legal Aspects Concerning the Physician. W. W. Watkins.
75.— Appendicitis. Thomas Parker.
76.— Treatment of Unavoidable Hemorrhage by Removal of Uterus. L. P. McCalla.
77.— Headache, a Symptom of Eye-Strain. Thos. D. Tuttle.

Pacific Medical Journal (San Francisco, Cal.), March.

78.—*Ether Narcosis by the Rectum. Eustorjio Calderon.

Texas Medical News (Austin), February.

79.— Retiring Presidential Address, before Austin District Medical Society. J. C. Anderson
80.— Typhoid Fever and Its Management. B. H. Brown.
81.— Treatment of Abortion. Sigmund Burg.

Woman's Medical Journal (Toledo, Ohio), March.

82.— Congenital Sarcoma of Scalp with Insanity of Pregnancy in the Mother. Report of Case. Helga Rudd.
83.—*Neuroses of Induced Menopause. Jennie McCowen.
84.— Case of Induced Labor for Placenta Previa with Complications Rather Unusual. Alice Guthrie.
85.— Operating Room and Its Accessories Adapted to Aseptic Surgery. (*Concluded.*) Anna Braunwarth.

Texas Clinic (Dallas), January.

86.— Hero Doctors of Texas. John O. Scott.
87.— Report of Case of Tertiary Syphilis. J. E. Wilson.

Physician and Surgeon (Ann Arbor and Detroit, Mich.), February.

88.— Annual Address before Grand Rapids Academy of Medicine. Herbert M. King.
89.—*Treatment of Suspected Specific Primary Lesions. William F. Breakey.
90.—*X-Ray as an Aid to Diagnosis. P. M. Campbell.
91.—*A Few Words About Fractures. William A. Spitzley.
92.— Some General Thoughts Based on the Term "Paralysis" in Particular. Hiram A. Wright.
93.— Relation of Meningeal Traumas to Mental Disturbances. Samuel Bell.

Indiana Medical Journal (Indianapolis), March.

94.—*Treatment of Pneumonia. E. H. Hadley.
95.—*Physiologic and Medical Treatment of Insomnia. John V. Shoemaker.
96.— Proteolytic Enzyme of Yeast. Catherine Golden.
97.— Report of Case of Gastrostomy, the Patient Being Up and Around on Fourth Day After Laparotomy. Nelson D. Brayton.
98.— Acetanilid Idiosyncrasy. O. R. Summers.
99.— Parovarian Cyst, Extra-Uterine Pregnancy and Chronic Appendicitis. L. H. Dunning.

Seaboard Medical and Surgical Journal (Norfolk, Va.), March.

100.— Some Remarks on Ethics. Israel Brown.
101.— Progressive Procedure in Bone Surgery. James N. Ellis.

Medical and Surgical Bulletin (Nashville, Tenn.), February.

102.—*Eclampsia: Cause, Primary Symptoms and Treatment. J. Preston Miller.

Oklahoma Medical Journal (Guthrie), March.

103.— The Don'ts in Pathologic Conditions of Eye and Ear: A Word to the General Practitioner. L. Haynes Buxton.

AMERICAN.

1. **Sheldon Murder Trial.**—This paper is largely a reply to a recent one by Phelps, in regard to the expert testimony of the trial in New York State.

2. **Tinea Favosa.**—Kinch thinks that the spread of this disorder is largely through domestic animals. Mice are especially subject to it, and cases of direct contagion from them to man have been reported. Cats, dogs and domestic fowls are also susceptible to the disease. Predisposing conditions appear to be necessary for the implantation of the parasites in man, e. g., youth, scrofula, impaired health, malnutrition, idiosyncrasy in the skin, and the author thinks slight traumatism should also be included. He believes that it is increasing in this country. The symptoms are described at length. For its treatment there is nothing better than persistent and repeated epilation, with brisk rubbing of a watery solution of corrosive sublimate (.005 to .008) into the diseased surface. This should not be entrusted to the patient, who will either underdo or overdo it, but he may apply some parasiticide ointment or an antipruritic. Of the former may be mentioned dilutions of various mercurial and sulphur ointments, among the latter those containing tar, carbolic acid, etc. Oily preparations are favorable to the growth of hair. Formalin would seem to be a good application in proper dilution. The cure of the disease is easy if confined to the epidermis or the nails, but in the case of scalp disease it is liable to be protracted and require prolonged treatment.

3. **Shock.**—Rishmiller completes his paper, in this issue, and sums up as follows: 1. Sensory-nerve irritation sufficiently powerful to produce exhaustion of the vasomotor center causes a reflex paralysis and consequently a dilatation of the vascular mechanism. 2. Children and aged people with lax fibers, and those addicted to alcohol, bear a peculiar susceptibility to shock. 3. Hemorrhage is the most pronounced cause, particularly if venous, as then the equilibrium of the vasomotor mechanism is too suddenly deranged. 4. Two distinct types are recognized; prostration with indifference, and prostration with excitement. 5. Peritoneal absorption of septic material invariably terminates fatally through shock before evident manifestations of peritonitis have developed. 6. A subnormal temperature, irregular pulse, superficial respiration, cold and anemic extremities, and clammy perspiration contraindicate an operation. 7. The severity of operative shock largely depends on the length of time in the performance of the operation, and the duration and degree of the anesthesia. 8. Shock may to a large degree be prevented by any counterirritation applied to the extremities. 9. Brandy *per os* and morphin subcutaneously before operating are imperative precautions toward prophylxais. 10. The main treatment consists in stimulating the vascular system and preserving the summer heat and supplying artificial heat to the body. 11. In acute hemorrhage or other excessive anemia an infusion of normal saline solution is prudently indicated.

5. **Apomorphin as a Hypnotic.**—The hypnotic effects of apomorphin are considered by Douglas, who calls attention to the contradictory statement in Potter's Materia Medica, as evidence of how the profession has overlooked the most valuable property of the drug; 1/30 gr. hypodermically is the average hypnotic dose, though it varies somewhat according to susceptibility. In many cases still smaller doses will do. Under ordinary circumstances it should be administered when the patient is ready for bed; if it is taken before he may go to sleep while undressing. In delirium this is not necessary. The direct hypnotic action apparently lasts from one to two hours, but often starts the patient to a good night's sleep. There is no possibility of the drug habit being formed, as the drug becomes a vigorous emetic if the dose is increased to 1/10 grain.

7. **So-Called X-Ray Burn.**—According to Rudis-Jicinsky, the X-ray burn is nothing more than acute, subacute or chronic mortification or necrobiosis. The irritation of the peripheral extremities of the sensory nerves causes a paralysis of the vasomotors of the vascular areas affected. The spasmodic contraction of the arterioles follows, and nutrition of the cells is impaired. Death of tissue is caused by permanent stasis in the blood-vessels.

8. **Varicose Spinal Veins.**—Coon reports the case of a man who had suffered from severe shooting pain in the limbs for years, and herpes zoster, together with other symptoms. He finally died of tuberculosis, and on post-mortem there was found a varicose condition of the posterior spinal vein and one or two others pressing on the posterior spinal nerves. He thinks this condition caused the shooting pains. He has found nothing similar in the literature, and quotes Hirt as to the absence of literature on the disease of blood-vessels of the spinal cord.

9. **Diseases of Arteries.**—This lecture by Allbutt covers the subjects of aneurysm, atheroma, relation of renal diseases to arterial disorders, syphilis, tuberculosis, etc.

10.—See abstract in THE JOURNAL of March 3, p. 560.

11. **Senile Cataract.**—Pyle discusses the general subject of disappearance of senile cataract, and gives a digest of the literature. He classifies such occurrences as: Cases in which there was absorption after spontaneous rupture of the anterior or posterior capsule; in which there was spontaneous dislocation of the cataractous lens; in which there was intracapsular resorption of the opaque cortex and sinking of the nucleus below the axis of vision, after degenerative changes in Morganian cataract, without rupture of capsule or dislocation of the lens; where there was complete spontaneous resorption of both nucleus and cortex without reported history of ruptured capsule, dislocation or degenerative changes of the Morganian type; in spontaneous disappearance of incipient cataract without degenerative changes or marked difference in the refraction. He describes a case which comes under the first division, and notices the plans and treatment for incipient cataract, suggested by Hogg and Kalish.

13. **Connective-Tissue Tumors of Abdominal Wall.**—The subject of Stavely's article is fibroid tumors of the abdominal wall, which he distinguishes from those other varieties growing in a similar situation, such as mole, keloid, the painful subcutaneous tubercle and the multiple subcutaneous fibroma. Muscular tumors—myomas—never exist in the abdominal wall. The dangers of these fibroids are their tendency to take on sudden and unexpected growth, to undergo degenerative metamorphoses or malignant transformations, and the possibility (always) of their being sarcomas. There is only one treatment, extirpation.

17. **Earache in Children.**—In accordance with Halsted's views, earache in children is rather an important disorder. The special glandular development of the Eustachian tube favors its involvement in inflammations, and they are more common than is generally expected. His conclusions are: 1. Earache in children is generally caused by acute inflammation of the middle ear, suppurative or catarrhal. 2. Infants and young children may have suppuration in the middle ear without giving satisfactory evidence of pain, or without rupture of the drum-membrane. 3. In the absence of other known cause of pain, from which a child is evidently suffering, the first cause to be thought of should be acute otitis media, and this calls for an examination of the drum-membrane. 4. It has been shown by examination of the middle ear during life and post-mortem, that purulent otitis media is nearly always present in acute infectious diseases of the gastrointestinal and respiratory tracts in young children, especially in gastroenteritis and bronchopneumonia, to which diseases it probably stands in a causative relation. 5. The cause of death in many acute and chronic infectious diseases, in meningitis and in the exanthemata is the result of unrecognized and untreated abscess of the middle ear. 6. Repeated earaches in children are ordinarily but a sign of acute exacerbations of a chronic otitis media resulting from adenoids. 7. In adult life, so-called catarrhal or progressive deafness is often but a final stage of the otitis media which had its beginning in early childhood when it was due to adenoids and practically curable.

18.—This article appeared before and was abstracted in THE JOURNAL of Februrary 24, ¶ 56, p. 486.

19. **Fracture Disorders.**—Eisendrath recommends and illustrates hinged splints for fractures. He thinks they are better as favoring the active motion of the patient at the stage when motility must be provided for.

20. **Gastric and Intestinal Instruments.**—Lincoln de-

scribes the various instruments invented by Turck, Einhorn and others, and their uses.

22. **Therapeutics of Heart Disease.**—The majority of acute cardiac disorders are inflammatory, but it is a mistake to suppose all of them so. In acute inflammation the condition is one of great excitement of the viscus, which is the chief complication; it is impossible to keep the heart at rest. The treatment should be leeches applied to the precordium, followed by flaxseed poultices made with extract of hamamelis, with laudanum poured on as it is applied, covered with oil-silk and the part kept from exposure day and night. Thomson lays special stress on the bad effects following exposure. Chills should be expecially avoided. One drug takes the lead of all others in acute cardiac inflammation, i. e., aconite. When, however, the condition is one of acute parenchymatous degeneration, as from the effects of diphtheria toxin, the condition is altogether different and we should not use digitalis, which would be indicated were the muscle fibers normal, but should push the administration of alcohol to its utmost limits, with strychnin, caffein, and, above all, hypodermic injection of camphor in sterilized oil, 8 grains to 20 m., repeated *pro re nata*. These remedies are also indicated in rheumatic disease where the heart is beginning to fail. The indications to stop aconite and the use of the other stimulants are: when the heart is beating feebly instead of strongly, and when the feet are not hot but cold. It would be greatly to the patient's advantage to be kept in bed for two months after a serious rheumatic attack, especially if a child. Prolonged rest and the use of aconite are the best defenses against damaged heart. The greatest contrasts in cardiac treatment, however, are met with in chronic diseases beginning later in life. Thomson's experience is that mild cardiac degeneration is one of the most common causes of failure of compensation in heart disease after middle life, and that it produces valvular incompetency in a large proportion. In this case we should look out for the general nutrition; the heart must not be considered alone. Gastric and intestinal nephritis, with or without ascites, greatly embarrass the heart, and 10 grains of sodium benzoate t. i. d. is very helpful. Sodium phosphate, 3ii in a tumberful of hot water and sipped slowly, should be taken every morning. A blue pill, one every four nights, with half an ounce of the sodium phosphate the next morning, is a remedy he approves in such cases, and kept up for months together with the most striking benefit. When the kidneys are sluggish, whether albuminuria be present or not, there is no diuretic which will equal daily flushing of the bowels with three or four gallons of decinormal saline solution, at 110 F., by means of Kemp's rectal irrigator. It is now that digitalis is of such inestimable service in cases of dilatation subsequent to hypertrophy, with mitral regurgitation, ascites, hydrothorax, etc., he says, and no clinical fact is better established than that in these conditions mercurial laxatives are the most effective adjuvants to this drug. In a new case he begins with full doses of a half ounce of the infusion of digitalis every three or four hours for the first two or three days, and then substitutes thirty drops of a mixture of equal parts of the tinctures of digitalis, strophanthus, and nux vomica. With each dose of digitalis nitroglycerin is given to obviate the arterial constriction which digitalis causes, and as soon as the latter begins to disagree with the stomach its administration is to be promptly intermitted. When neither digitalis nor strophanthus is well borne, a very good pill may be given instead, of spartein sulphate, gr. i, powdered squills, gr. ss, caffein citrate, gr. iss, and strychnin, gr. 1/30. In quite a number of these cases, which at first sight might seem to indicate clearly the administration of digitalis, this drug fails altogether, or, after being apparently useful for a while, it loses its effect and causes much gastric disturbance instead. In such instances the myocardial degeneration has advanced too far for digitalis to be of any service, but there are other things. We must not forget that all nervine medicines, such as digitalis, nitroglycerin, strychnin, etc., are temporary makeshifts, and only relieve the symptoms for a time. Of the other agents which restore nutrition, the first is fresh air, and among drugs Thomson never fails to give iron as soon as he can, keeping it up continuously. Mercury, the iodids and arsenic are also often of great service in chronic cardiac disease. Finally we have the most complete contrast to the recommendations of rest in bed and sedatives in acute carditis, in the various forms of resistant muscular exercise, massage and Schott's saline and carbonic bath courses, which are all excellent in principle, frequently in effect, but may be fatal in cases not adapted to them. A diseased aorta or rigid arteries throughout the body can not be safely submitted to the strain of these measures.

23. **Inoculation Wound of Lues.**—Allen mentions several cases of chancre caused by bites, etc. In less than 400 successive records there were not less than 46 congenital inoculations. He thinks this may be a larger proportion than will often be met with, but he offers the record to call attention to prevalence of non-licentious inoculation of lues.

24. **Chorion Epithelium and Decidua in Tubal Gestation.**—Talmey reports the findings in a case of full-time tubal gestation, which offer the following points of interest: 1. The hyperplasia of the Fallopian tube in tubal gestation consists only of a proliferation of the connective tissue and not of the hypertrophic muscular coat. The muscular part, on the contrary, had almost entirely disappeared by the direct destructive action of the growing connective tissue. 2. The tube, at the placental site was thinner than normal, consisting only of thickened serosa and a layer of fibrin without any muscular elements. The growing placenta had the same effect on the tube as a malignant growth. 3. Decidual cells were entirely absent. 4. The stroma of the chorionic villi, as well as their covering, has entirely lost the cellular elements. He discusses these conditions in relation to the origin of the chorionic epithelium.

25. **Whooping-Cough.**—This article is an analysis of 261 cases of this affection, occurring in a service of more than six years in the New York Dispensary. The author especially mentions three cases of pulmonary complications, and notices the rarity of these in this disease. Cardiac complications are also infrequent. Belladonna is the favorite drug. In addition to this a supporting treatment of cod-liver oil and malt preparation was used. Antipyrin was not effective where tried.

27. **Shoulder Injuries at Birth.**—Stone points out the methods in which obstetric injuries may occur, and the type of paralysis associated with them. The vast majority of cases of infantile shoulder dislocation must be regarded as paralytic, the paralytic cause at birth giving rise to the dislocation, which is due to a gradual yielding of the ligaments under the strain of the opposed muscle pulling in one direction. Traction is the cause of obstetric paralysis and therefore, so far as possible, direct traction on the shoulder should be avoided. After the injury is done, support for the arm is essential. Dragging on the stretched nerves must be prevented and the muscles given a chance to regain their tone. Later, massage and electricity have their values. It is a question whether in certain cases the injury can not be repaired by surgery, and the possible methods are noted. In conclusion he wishes to emphasize the following points: True congenital dislocation of the shoulder, and true traumatic dislocation of the shoulder at birth are of extremely rare occurrence. Obstetrical paralysis, which is of Erb's type, is due probably almost invariably to a stretching and in some cases a rupture of the two upper roots of the brachial plexus, as is proved by anatomical study.

28. **Steam in Uterine Therapeutics.**—After giving a description of the methods and the experience of others, Johnson describes his method, which consists in using, under asepsis, a hard rubber tube introduced through a small-sized uterine speculum connected with an ordinary steam throat atomizer. The steam is applied for thirty seconds, then removed; the cervical and uterine cavities should be dried with gauze and steam applied for thirty seconds. The patient is kept in bed from four to six days. Short douches are given night and morning. The steam, when it leaves the boiler, is at 212 F. but in the uterus it varies from 192 to 212 F. He does not consider it best, unless he wishes to obliterate the uterus, to use it more than one minute. He appends the report of Dr. W. F. Whitney as to the effects of steam on the endometritis, which shows that the destruction does not go down to the muscular tissues. He mentions thirty-one cases in which this treatment was used.

29. **Tuberculosis.**—Spiers questions the efficiency of the

tuberculin test for diagnostic purposes, and holds that it is somewhat dangerous. He claims that the precedent state in the first stage of tuberculosis is caused by "suspension of atmospheric influences," and offers the following questions: 1. Does suspension of atmospheric influence cause a condition of system that allows the tubercle bacilli a natural entrance and growth? 2. Is there more than one method of suspension? 3. Is there an anatomic difference in the lung tissue of health and of heredity or of acquired influence? 4. Is there a test, chemical, microscopic or otherwise, which will determine the difference in the blood of health and that of suspension of atmospheric influence? Has science a delicate test?

30. **Supravaginal Hystero-myomectomy.**—Stone reports and discusses a dozen cases of supravaginal hystero-myomectomy and advocates conservative operation. He is opposed to excessive traumatism of the uterus. In these cases the operation was generally a partial hystero-myomectomy.

31. **Intra-abdominal Adhesions.**—The general subject of intra-abdominal adhesions and their dangers and inconveniences are discussed by Beahan. He advocates drainage as a means of avoiding their formation, though he thinks the satisfactory method for so doing is not yet reached. Adhesions should not be meddled with unless they give evidence of trouble, and the author believes that the practice of suspending an organ by carefully planned adhesions is unsatisfactory and dangerous. It is possible, he says, in conclusion, that the "abdominal adhesions from whatever source bear close relations as a factor in the production of malignant disease."

32. **Meddlesome Gynecology.**—Hayd enumerates the various conditions that lead to over-interference, such as endometritis and cervical catarrh, which have been the subject of topical interference to a dangerous extent. Curetting also is an overdone operation, and he condemns the practice of doing it in the office. Cervical and perineal lacerations are also dangerously trifled with by routine methods. Ureteritis and ovarian pains have been made the subject of meddlesome treatment. The uterine sound, the galvanic electrode and pessary have been useful implements in the hands of competent men, yet they are two-edged swords and liable to give trouble. He thinks that while the cry, "there is too much operation," is in some respects just, there is too much incomplete surgery also.

33. **Oophorectomy.**—Brockman believes that there are many cases where oöphorectomy can be profitably performed for menstrual disturbances, especially when accompanied by serious nerve symptoms, like epilepsy and insanity. The earlier the operation is done the better the chance of cure; if the diseased condition has lasted long the prospects are not good. He reports four cases which he thinks indicate the value of this procedure, 1 cured, and 2 much improved.

37. **Trigeminal Neuralgias and Migraine.**—Putnam holds that there is a class of cases which stand in relation both to the condition known as migraine and simple neuralgias. He asks what has been gained by putting the vast shifting collection of symptoms which we call migraine in a group by themselves, or is there any feature that justifies the assumption of a pathology different from that of "neuralgias?"

38. **Lesions of Optic Chiasms.**—Leszynsky reports three cases of chiasmic lesions and discusses their nature. He classes all such lesions as follows: 1. Associated with intracranial growths and their concomitant symptomatology. 2. From enlargement of the pre-hypophysis cerebri, as occurring in acromegaly. 3. In syphilitic basal meningitis. 4. From a circumscribed pathologic process, which gradually produces complete atrophy of both optic nerves, without any cerebral symptoms whatever.

40. **Infant Mortality.**—This concluding instalment of Wende's paper is devoted to milk inspection and regulation of milk-supplies in cities.

41.—See abstract in THE JOURNAL of January 6, p. 41.

42. **Rickets.**—Tuttle defines rickets as a constitutional malady acquired through mal-assimilation characterized by impaired nutrition in the growing bones, and terminating spontaneously after an indefinite period. He discusses the symptoms and course of the disease, and the theories, of which the inflammatory one is to him the most plausible. The prognosis is generally good. The treatment is largely preventive, including proper feeding and care of the child after birth, as well as attention to the mother's health during pregnancy. If the child is to be fed by hand, he believes cow's milk properly prepared is the best diet. The hygienic care of the child consists in daily baths in tepid saline water, with vigorous rubbing, warm light woolen clothing, plenty of high, dry, out-of-door air, and good sanitary home conditions. For drugs, he advises cod-liver oil, oleum phosphoratum as recommended by Jacobi, and syrup of iodid of iron. In some cases he has used Fowler's solution for a short period.

43. **Vaccination.**—Guest compares the advantages and disadvantages of points with glycerinized-lymph tubes. The former are more convenient and cause less general disturbance, but the latter are more reliable, can be kept much longer, and there is less danger of impurities.

45. **Tetanus Antitoxin.**—Abbe reports nine cases of the intracerebral use of tetanus antitoxin with four recoveries. He believes that the use of this method is a valuable adjuvant in the treatment of this disease, and cerebral injection is an advance over the subcutaneous method and worthy of extended trial and study.

46. **New Method of Suture.**—Freeman describes the method of suturing in operation for inguinal and other forms of hernia, by prepared wires along the internal incision, over which the sutures are carried, thus approximating the cut surface; they are next bent upward at one end so as to pass out of the incision, allowing them to be removed after union has taken place, which is in from ten days to two weeks. He claims the advantages of this method are that it overcomes tension more easily, prevents the cutting through of the sutures, allowing a large amount of muscle to be bunched against Poupart's ligament, and allows the easy removal of the sutures. He has employed it three times with marked success.

47. **Fracture of Neck of Humerus.**—The conclusions deduced by Curtis from his experience in several cases are as follows: 1. In fracture of the upper end of the humerus with displacement of the upper fragment from the glenoid cavity, when proper attempts at simple reduction under general anesthesia have failed, operative measures should be resorted to unless shock, other injuries, or extensive damage to the soft parts about the shoulder justify delay. A delay of from one to four weeks will not impair the result. 2. Anterior displacements require a posterior incision, preferably by Kocher's method. 3. The head should be restored to its place, if possible, and resection resorted to only when reduction is impossible or would require such extensive damage to the parts, or such prolongation of the operation, as to increase the danger of wound infection or of shock. 4. Resection will probably give a better result in fracture of the anatomic neck than in that of the surgical, but reduction is to be preferred in both cases. 5. Asepsis is an indispensable requirement for a good functional result, and these operations must not be undertaken except under aseptic conditions. 6. Motions should be begun in the joint as soon as the wound is healed, in ten to fourteen days after the operation.

48.—See abstract in THE JOURNAL of February 3, ¶ 103, p. 288.

51.—See abstract in THE JOURNAL of Oct. 7, 1899, p. 912.

52. **Gastrectomy.**—Harvie reports another case of extirpation of the stomach for carcinoma. The patient was a woman aged 46, and the stomach was taken out with the exception of a very small portion near the cardia, together with several centimeters of the duodenum. The recovery was apparently perfect.

57. **Tuberculous Infection.**—Baldwin first notices the extreme ideas that have been and are being held in regard to the infection of tuberculosis. He says that the very fact that the relative importance of the different sources of tuberculosis is more or less unsettled should make one cautious in giving positive opinions. We certainly find that a large proportion of the patients with a history of pulmonary tuberculosis have a direct inheritance or predisposition, and we must believe in inherited susceptibility combined with prolonged exposure to infection as giving rise to this disease, but long exposure is not alone sufficient. He asks how any one in a civilized coun-

try, particularly in cities, can hope to escape inhalation of the tubercle bacilli. It is hopeless to attempt to trace the bacilli. As regards the danger of contact with tuberculous patients under proper precautions, he quotes the experience of the Adirondack Sanitarium. In its whole history, extending over fifteen years, there has been no instance of tuberculosis among employees, although many appeared to be good subjects when entering its service. The simple rules enforced there, obliging patients to use cheap paper cuspidors and Japanese napkins, appear to be sufficient in insuring against infection. He also examined the residents of Saranac Lake and found not over twenty cases of pulmonary or meningeal tuberculosis each, in a population of 2000, during fourteen years. He thinks our sanitary rules against expectoration have a greater moral effect than many suppose. Cattle seem to be seldom infected from human beings, as at Saranac Lake there are 250 dairy cows which were examined for tuberculosis and not a single case was found among them. He does not, however, think we should relax our public health measures to control tuberculosis, for the reason that it is not such a deadly contagion, and he speaks especially of mouth breathing in increasing the disease. Room disinfection with formalin, next to sunshine and air, will render it perfectly safe after the presence of the disease.

58. **Fracture Into Elbow-Joint.**—Carleton describes the acute flexion method of treatment of this fracture, the character and nature of which he discusses. The method of procedure is as follows: The surgeon grasps the forearm with one hand and the elbow with the other, the fingers being placed on the internal condyle. The arm is strongly extended to reduce any dislocation, and while extension is kept up the forearm is flexed on the arm. During this procedure the fingers and thumb of the hand which grasp the joint mold the fragments into position, generally by simply pushing the internal condyle forward and pulling the internal backward at the same time. The flexion is carried up to an angle of 45 to 95 degrees, then the two elbows are compared as to contour, and the distance between condyles over olecranon is measured. If there is over one-eighth of an inch difference, the reduction is repeated until the relations of the injured joint correspond to the normal, or nearly so. When the surgeon is satisfied with the condition of the joint the forearm is semipronated, and a strip of surgeon's plaster is passed around the wrist and then around the arm just below the axilla, to retain the arm in its flexed position. If the skin of the anterior surface of the joint is excoriated or bruised, a piece of gauze is passed into the bend of the elbow to keep the two surfaces apart. The elbow is protected by cotton and the hand tied to the neck by a bandage fastened to the wrist. Then the whole arm is bound to the body by a bandage. After three or four days the bandages are removed and a triangle-shaped bag or sling is made, which holds the arm by straps passed over the shoulder, keeping the arm in the same position as the more cumbersome bandage. Passive motion is commenced in children in from the seventh to tenth day and, generally at the end of the fourth week, perfect extension and flexion to the angle of the arm at which it was first fixed are restored. The *rationale* of the treatment is discussed. The paper is based on thirty-five cases thus treated with excellent results.

59. **General Theory of Sensation.**—Moore's paper discusses the theory of the different sensations being due to the different changes of vibrations.

62. **Diffuse Infective Peritonitis.**—From an analysis of twenty-eight cases due to various causes, seven of which recovered, and several were moribund when received, Goodrich concludes that the majority of these and a large proportion of all cases of diffuse peritonitis are due to previous disease of the appendix. The majority of fatalities were caused by unduly prolonged medical treatment. He also finds that pancreatitis is too often overlooked, and concludes that the appendix should be removed whenever the abdomen is opened for inflammatory conditions. He questions the wisdom of artificial drainage if no necrotic abscess wall exists. There are many special niceties in the technique of the operation, which may be important in any case, and he says no measure for prevention of infection can be too extreme. However, scientific thorough mopping of the serous coat of the intestine may seem, the important element of shock must not be forgotten.

68. **Morphinism.**—Stockard believes in sudden withdrawal of morphin, and says that by the use of strychnin and myd-riatics the worst is passed without serious suffering. Much depends on the after-treatment and the building up of the system and in preventing relapses. In a few cases he does not use the sudden method, but where the general conditions are fairly good he prefers it. Several cases are reported.

70. **Guild of Mercy.**—An account of this organization may be found in THE JOURNAL of July 22, 1899, p. 213.

71. **Blisters.**—Hurt argues for the value of blisters in various conditions. He thinks their dangers have been overestimated. The preparation he recommends is cerate of the extract of cantharides, U. S. P.

78. **Ether Narcosis by the Rectum.**—The method of etherization by the rectum for surgical narcosis is an old one, having been proposed by Pirigoff in 1847, but with the rise of chloroform it has been neglected. Calderon revives it and considers it safer and offering special conveniences in operations on the head, face and neck where free access to those parts is necessary without the interference of the mask or inhaler. In operations on the lower extremities it is not so convenient, and in laparotomies the bowel distension would interfere. The apparatus he usually uses consists in an ether flask enclosed in a larger vessel and connected with a rubber tube and rectal nozzle. The ether vapor is produced by pouring warm water in the larger vessel, through a funnel arrangement. The evening before the operation the patient requires a physic and enema, which should be repeated one or two hours before operation. These are essential for successful narcosis. The length of the time required for narcosis depends on the individual. The method is counterindicated in cases of disease of the intestine or imperfection of the sphincter. He reports a case of operation for mastoiditis in a child; it took just five minutes to produce the narcosis, which passed off in an hour without any disagreeable effects.

83. **Neurosis of Induced Menopause.**—The chief facts in McCowen's article are that removal of the ovaries does not bring on the natural menopause and that many, after recovery from the operation, will have to go through the regular change of life before recovery of health.

89. **Treatment of Suspected Specific Lesions.**—In cases of suspected primary lesions it is not necessary to at once enter upon specific treatment, acording to Breakey. He believes that at the time they appear the system is already fairly infected and there will be no special advantage therefore in beginning treatment before we are sure of the diagnosis. He thinks that free and pronounced eruption, occurring at the average period, is a favorable sign, and active treatment can be begun when this is well developed.

90. **X-Ray in Diagnosis.**—The value of the X-ray is insisted on by Campbell, who prefers the static machine. He illustrates several cases and points out the advantages as an aid to the surgeon when properly used.

91. **Fractures.**—Spitzley criticises the text-book method in describing fractures, and the importance laid on the distinction of simple and compound, protesting also against the term "ununited" and "spontaneous" as ordinarily used. Multiple fracture is also a term which he thinks confuses the student. The important point in regard to the treatment is the proper replacing and retaining in position, allowing for the muscular traction. The student should note the anatomy and contour of the bones so that they may serve as definite landmarks. He also criticizes the popular fixed dressings; their real value is entirely in the rest which they secure for the part.

94. **Pneumonia.**—First noticing the views as regards the treatment of pneumonia, given in various text-books, and the general tendency toward therapeutic nihilism in this disease, Hadley expresses his belief that pneumonia can be successfully treated and aborted in its earlier stages. The agents of which he speaks are venesection, which he thinks would be beneficial if we had the courage to often practice it in sthenic cases, the hot jacket poultice, carbonate of ammonia for the relief of asthenic or passive congestions and the use of morphin for the relief of pain. Digitalis, strychnin and ergot are mentioned, but not especially approved. Coal-tar preparations are depressants and may be of value in sthenic cases. Oxygen inhalation is at least palliative in the second stage, and may

prove a saving remedy. The serum treatment is hopeful. He condemns blisters.

95.—See abstract in THE JOURNAL of July 8, 1899, p. 101.

102. **Eclampsia.**—Miller considers albumin in the urine of less importance than is usually thought, as he has had four successive cases which failed to show any such reaction. The points which he especially desires to impress are: 1. Early recognition of the primary symptom of eclampsia—headache, high arterial tension, physical and mental lassitude, constipation and impaired digestion. 2. Early adoption of preventive measures which have for their object the prevention of the formation of toxins and their elimination when formed. When the fit is on, the mischief is done, and we can but limit its consequences.

FOREIGN.

British Medical Journal, March 10.

Lettsomian Lectures Being Practical Observation on Cancer of the Breast. SIR WILLIAM BANKS.—After some general remarks on the value of statistics and their possible errors, Banks gives his views as to the increase of cancer, which he thinks is real. He also quotes the conclusions of Haviland as to the local distribution ,and those of Williams, which seem to point to its being most common in low-lying seasonally flooded districts. As the cause, he discusses the various theories and facts as far as known, and is inclined to believe that over-nutrition has much to do with it. Richer and more abundant food in modern conditions, together with the fact that cancer has always been more prevalent amongst the well-nourished and vigorous, he thinks, point to the possible reason for the increasing frequency. The importance of early diagnosis is considered, and he remarks on the old idea that cancer is entirely a constitutional disorder. There is something in predisposition and susceptibility. Figures seem to show that the hereditary infectivity of cancer is not strong, and most likely dies out at the end of a couple of generations. As regards the influence of traumatism, Banks is inclined to credit it, in spite of the opposite opinion expressed by Roswell Park.

Surgery of the Stomach. A. W. MAYO ROBSON.—The author urges the following conclusions concerning the surgical treatment of gastric ulcer: 1. In all cases, except in those of perforation, medical treatment should be first tried. 2. Where ulceration persists, or the symptoms recur or prove intractable to medical treatment, gastro-enterostomy should be performed, so as not only to give rest to the stomach but to relieve the hyperacidity of the gastric juice. 3. As a rule, direct treatment of the ulcers by excision is unnecessary. 4. Complications such as adhesions, pyloric contraction, dilatation and hour-glass contraction, leading to loss of flesh and impairment of health, should be treated surgically. 5. In chronic hemorrhage surgical treatment is advisable, as it is in some cases of recurrent acute hemorrhage, but, as a rule, acute hemorrhages should be treated medically. As regards gastric hemorrhages, after careful study of reported cases, as well as from personal experience, he feels that operative treatment in acute hemorrhages gives such a high rate of mortality—64.2 per cent. as compared with from 5 to 10 per cent. in cases treated medically—that it is better in such cases to rely solely on medical means. But in the repeated chronic ones responsible for quite half the total deaths from hematemesis, gastro-enterostomy affords a reliable treatment, since it at the same time gives rest to the stomach, and removes the hyperacidity of the gastric juice, by an operation that can be done with rapidity and comparative safety; moreover, when the ulceration is at the pylorus, where it so frequently leads to hypertrophy and stenosis, the operation not only relieves the symptoms for which it was undertaken, but proves curative.

Causes and Treatment of Movable Kidney. C. MANSELL MOULLIN.—The author, after describing the anatomic relations of the kidney, says, as his theory of the origin of movable kidney, that it is one of the penalties of the erect position. In quadrupeds the kidneys are buried deep in narrow recesses protected by the ribs and rest on the horizontal sheet of fascia which in its turn rests on the peritoneal viscera. The slight degree of backward and forward movement, which is necessitated by the action of the diaphragm, takes place without the least risk in animals with the horizontal spinal column, but in man this forward and backward movement is changed to an up and down one, and the peritoneal viscera lie in front and not below, while the lumbar recesses, instead of being deep and narrow become broad. The pelvis, especially in the female, is wider, and the development of right-handedness causes the transverse processes of the lumbar vertebræ to rotate. From a position of the greatest safety the kidneys are placed in a very unsafe one, and it is not remarkable that they may become displaced from comparatively trivial causes; the wonder is not that movable kidney occurs, but that it does not occur oftener. As regards the treatment, the choice lies, he says, between wearing an abdominal belt and nephrorrhaphy. The former succeeds only in mild cases and must be combined with massage and judicious exercise to strengthen the organs. In those where there is a manifest deformity of the lumbar region with movable kidney, or in which there is a real distress he never hesitates to recommend nephrorrhaphy.

The Lancet, March 10.

Suggestion for a Method of Opening the Pericardial Sac, Founded on a Case of Purulent Pericarditis. CYRIL OGLE AND HERBERT ALLINGHAM.—The authors recommend the following method of opening the pericardium, which they have repeatedly tried on cadavers and believe would be perfectly easy to acomplish in the living subject and has advantages over other methods: 1. An incision of about three inches in length, with its upper end at the costo-xiphoid angle, is made along the lower edge of the seventh left costal cartilage; the latter is then exposed by separating the abdominal muscles from it; the cartilage can then be pulled somewhat outward and upward, when the fibers of the diaphragm become visible, together with the cellular interval between its attachment to the cartilage and to the xiphoid appendix. 2. This cellular interval is enlarged by cutting or tearing through the muscle of the diaphragm as far as may be necessary, when a mass of fat is usually seen just above the diaphragm, in the space between the pericardium behind, the sternum in front, and the diaphragm below. 3. This fat, together with the diaphragm, is pulled downward, when the pericardium presents itself and can be incised or opened up with forceps at its lowest part in front, and a large hole being made, an inserted finger can explore the heart over its whole extent, back and front, nearly as far as its extreme base. During the operation the pericardium may be exposed to a slight extent, as it sweeps downward from the under surface of the diaphragm. It is pushed aside, as is done in performing a suprapubic cystotomy. The superior epigastric artery can be kept well inside, toward the middle line, on separating the tissues after cutting through the attachment of the abdominal muscles to the seventh cartilage. The advantages of this method of opening the pericardium from below appear to be: 1. The absence of danger or injury to the pleural cavity. 2. Drainage is from the most dependent part of the sac, when the patient is half propped up and greater ease is afforded for the exploration and cleansing of the heart surfaces to its extreme limits.

The Practitioner (London), March.

Treatment of Pneumonia. JULIUS DRESCHFELD.—The author, first speaking of the possible specific treatment, is noncommital as to the value of serum treatment, and other methods that have been proposed. He mentions venesection, formerly almost universally used but now reserved for special cases, tartar emetic, mercury, digitalis, which has found some supporters, and pilocarpin, the depressing effect of which he thinks would counteract any of its good results. In all cases of pneumonia the patient should go to bed, be kept as quiet as possible, and should be sponged at least once daily, never left alone, and the feeding should be the ordinary fever diet, but not too much liquid food. The diet should be continued some days after the crisis. In most cases he gives two doses of 5 to 10 grains of quinin in twenty-four hours. He uses icebags to the chest, excepting in old people or those suffering from chronic bronchitis, and uses them intermittently in weakly patients. If there is much trouble in breathing, and in all cases of influenza pneumonia, he gives digitalis early with

tincture of nux vomica, carbonate of ammonia, and sometimes the inhalation of oxygen and mild aperients if there is constipation. For pleuritic pain he recommends mustard poultices or leeches and, if this fails, injection of morphin and atropin can be safely given in the early stage. If the fever does not reach 103 F. in adults and 104 in children, antipyretics are not needed, but if it exceeds that he reduces it with cold baths. Antipyretic drugs had better not be given, excepting quinin and possibly phenacetin, and for the circulatory system, digitalis and alcoholic stimulants, not to exceed 6 to 8 ounces of brandy in twenty-four hours. Subcutaneous injections of strychnia may also be given, and he has found turpentin of value as a cardiac stimulant. The special symptoms of cough and dyspnea are noted, and insomnia, which is generally troublesome, is relieved by morphin in the first stages, and later he would give paraldehyde or possibly chloral. He thinks the fear of giving morphin, however, is exaggerated. In one or two cases lately he has given very small doses of hyoscin, which was well borne and had good effect. The other symptoms mentioned are delirium, which is treated like the fever, digestive disorders, most troublesome in children, diarrhea, which should be checked early, and urinary albuminuria, which he considers as contraindicating cold baths or alcohol, only in cases of Bright's disease. During the crisis the patient should be stimulated by heat and, if necessary by strychnia; digitalis should be stopped. During convalescence the patient should be carefully looked after, not get up too soon, have light diet and change of air if possible. Special types of pneumonia in children, in the aged, and in alcoholic cases are mentioned. In the latter class we should use stimulating treatment generally. Apex pneumonia should be carefully watched during convalescence lest it be followed by phthisis. The prophylaxis should not be neglected. Three types of pneumonia may occur in connection with influenza, one a serious form of croupous pneumonia, one due to the influenza bacillus, and the third a sort of septic form due to a streptococcus. Ammoniated tincture of quinin, cold sponging, stimulants, inhalation of oxygen, and the early use of strychnin subcutaneously are mentioned as chief items of treatment. Typhoid or septic pneumonia requires quinin in large doses, and free stimulation. Of the complications, one that requires mention is pleural effusion, but this can be left alone until primary disease has subsided if the effusion is serious.

Treatment of Acute Pneumonia. R. W. PHILIP.—This writer anticipates rather more from the serum treatment than Dreschfeld seems to, but he does not consider the method sufficiently mature to warrant full recommendation. He says the principal indications are to give the patient plenty of fresh air and to husband the strength. Alcoholic stimulants may be required, though they will generally be found helpful after three or four days. When the circulation shows signs of embarrassment, cardiac tonics will do good. The patient must be relieved, and warm poultices are of advantage, though morphin may be required. Insomnia and restlessness may be benefited by the cold sponge-bath, also by the wet pack. Unusual symptoms may be met as they occur. When convalescence is established, it is an error to keep the patient confined to bed too long. As regards prophylaxis, he recommends that the same lines should be followed as have long been deemed advisable in cases of more generally recognized specific fevers.

Pathology of Pneumonia and Pneumococcal Infection. J. W. WASHBOURN.—The author calls attention to the necessity of distinguishing pneumonias from one another by the causes. He believes that we have quite a number of types due to pneumococci, as we may also have pneumonia due to other causes, such as Friedlander's pneumobacillus and the influenza bacillus. In mild cases the distribution of the cocci is limited to the lungs, but in serious ones they range throughout the system, in the circulation, and we should look on pneumonia as a septicemia, the lung disease being simply a local attempt to confine the germs. The presence of cocci occurs in complications such as pleurisy, which may be primary, otitis, endocarditis, peritonitis and acute septicemia. He found that the cocci produce septicemia and other symptoms in rabbits, and we also know that in man the disease is especially fatal during certain epidemics, indicating the increase of virulence in the cause. Washbourn shows how the virulent pneumonia may be transformed to nonvirulent, and again changed to the virulent type. Virulent pneumococci are frequently present, and no doubt multiply in the mouths of healthy individuals; he found them in two of the eleven individuals examined. They may retain their virulence in dried sputum for many weeks, thus explaining the frequency and to some extent the epidemiology of the disease.

So-Called "Ether Pneumonia." J. FREDERICK SILK.—His conclusions on "ether pneumonia" are summed up by Silk, as follows: 1. Ether inhalation is only one of the lesser exciting causes of croupous pneumonia. The stimulating properties of the vapor may even help to ward off an attack. 2. Catarrhal conditions of the mucous membrane of the air-passages are universal under ether, and their tendency is to subside on withdrawing the vapor. In a small proportion of cases, however, an inflammatory condition is produced, and the patient's life is in jeopardy. Other concomitant causes will then generally be found at work, e. g., cold and exposure. 3. To limit this tendency, careful precautions will usually suffice, especially in the direction of avoiding exposure, cold and draughts.

Bulletin de l'Academie de Medecine (Paris), February 27.

Gout. D. CRITZMANN.—The kidney is the keystone of the pathogenic edifice of gout, according to Critzmann, and the uric acid is the mortar. The intensity of the morbid process is proportional to the extent of the anatomic lesion of the kidney, which is usually due to some hereditary predisposition. This conception of the etiology of gout affords a guide to therapeutics, and suggests that the only factor which affects the formation of uric acid is the absorbable nuclein existing in the food; the albumin and salts in the food have but secondary importance. The only factor which affects the excretion of uric acid is the condition of the epithelial cells lining the convoluted tubules of the kidney.

Treatment of Erectile Tumors with Coagulating Injections. T. ANGER.—Nearly forty cases have been treated by Anger, with injections of Piazza's solution: Perchlorid of iron at 30 degrees, 25 grams; sodium chlorid 15; water 60: amount injected, 2 to 10 drops for small angiomata, and 20 to 40 for large. The tumor is constricted to arrest the circulation for at least fifteen minutes. In most cases a single injection is sufficient, but it is repeated in three months to a year if needed. If extirpation is impossible and electrolysis for any reason not practicable, Anger's success certainly warrants trying this measure.

Restoration of Nose Over a Metal Frame Between Two Layers of Flaps. P. BERGER.—The nose had been entirely destroyed, leaving nothing but a hole in the center of the face. A flap was cut on each side, the base corresponding to the side of the nose hole. These flaps were turned over, skin side down, and sutured together along the median line. The platinum nose frame or support was then placed on the foundation afforded by these flaps and fastened to the bone. Another large flap was then cut in the forehead and brought down over the metal frame and over the defects where the other flaps had been cut out of the cheeks, and sutured to the outer edges of these defects. The wound healed by first intention and the nose is quite satisfactory.

Attenuated Forms of La Grippe and Principles of Treatment. H. HUCHARD.—The mild or masked forms of la grippe, with or without fever, are as dangerous as the pronounced cases, if not more so, as the subjects do not realize that they are ill, and consequently continue their daily life, exposing themselves constantly to the secondary infections which constitute the most serious factor in the morbid process. La grippe is essentially a hyperemic congestive disease, usually lowering the arterial pressure, sometimes to a remarkable extent, and inducing most pronounced nervous asthenia. Certain congestive conditions of the lungs in la grippe are evidently due to a paretic condition of the vagus and diminished elasticity of the pulmonary vesicles. The moral, physical and intellectual depression of la grippe may exist without any other symptoms. The la grippe bacillus alone produces

a comparatively mild infection, but it lowers the resisting powers of the organism and seems to exalt the virulence of ordinarily harmless bacteria in the body. We have no means of combating the primary infection, but it is within our power to prevent and cure the secondary complications, prevent the infection of persons in health and guard those already affected with the mild, latent or masked forms of la grippe. This Huchard accomplishes with rigorous asepsis and antisepsis of the mouth, nose and throat, careful dietary hygiene, a milk or vegetable diet: "Cherish the stomach with pious care in an epidemic of la grippe." At the first indication of the disease he orders 1 to 1½ grams of quinin hydrobromate in the course of a single day or of two or three days, according to indications. The quinin seems to render the soil less favorable for invasion by other germs. At this dose and this alone, it acts as an anticongestive, tonic, vaso-constrictive and tends to raise the blood-pressure, thus answering the indications. He sometimes enhances this effect by combining ergot with the quinin; 10 cg. of an aqueous extract of ergot with 10 cg. of quinin sulphate in one pill, ordering six to ten pills a day. Glycerophosphates or strychnin may be indicated if the nervous system is very much depressed. He considers isolation ineffectual in a pandemic of la grippe. The only means to check its ravages is with antisepsis, dietary hygiene and quinin. Antipyrin may be useful with much pain. For the buccal antisepsis he recommends one or two tablespoonfuls of Van Swieten's solution in half a glass of water; or 5 per thousand phenic acid or one-half per thousand formol. Laborde uses a solution of phenic acid, very hot.

Bulletin de la Soc. Med. des Hop. de Paris, March 8.

Milky and Opalescent Ascites in Two Children with Chronic Nephritis. G. VARIOT.—Both children had been on a milk diet for a long time, on account of their chronic nephritis. The ascitic fluid contained 1.20 gram of fatty substances to the liter in one case, with 20 cg. in the urine, and the blood serum was also milky in appearance.

Cacodylic Medication. F. WIDAL AND P. MERKLEN.—THE JOURNAL reviewed Gautier's announcement of the benefits of cacodylic acid and sodium cacodylate in anemia, July 8, 1899, p. 99. Further experiences have confirmed the value of the subcutaneous administration of arsenic in this form, which can be continued for years without ill effects of any kind or becoming accustomed to the drug. It increases the appetite and improves the general health to a remarkable extent, and the writers of this communication have established that the number of red corpuscles in the blood is materially increased, both in man and in animals. This increase, in blood drawn from the pulp of the finger, varied with different subjects, and was most marked the more pronounced the anemia. It was evident in some cases in half an hour after the first injection. In one of chlorosis the reds increased from 1,178,000 to 2,821,000 forty-five minutes after an injection of 5 cg. of cacodylate. In a case of leucocythemia the reds fell from 1,310,000 to 1,147,000 in half an hour; then rose gradually to 2,630,000 by the end of six hours. In one of tuberculosis of the first degree, the reds increased nearly three millions in three hours, falling then below the number at the first injection, but gradually increasing with two other injections, until a constant value of nearly a million higher than at first was maintained. The only case out of the large number tested in which the reds were not materially increased was an observation of diabetes complicated with pulmonary tuberculosis. The whites do not seem to be affected by the medication. Gautier has established that arsenic thus administered is eliminated very slowly by the kidneys, but that a small proportion remains in the organism to supply the physiologic demand for arsenic in the thyroid, etc., which he has recently announced. He finds it always physiologically associated with iodin, and consequently recommends a small amount of potassium iodid in combination with the subcutaneous cacodylic medication. The gastric and rectal routes are dangerous owing to chemical changes in the cacodylate.

Journal des Sciences Med. de Lille, March 8.

Fibroma of Uterus in Relation to Epithelial Cancer. E. VERSTRAETE.—The generally accepted benignity of uterine fibromyomata is denied by Verstraete, who has compiled a tabulated statement of the observations, in the literature, of a fibroma and coexisting epithelial cancer. He says the complications of uterine fibromyomata are numerous and frequently dangerous: most to be dreaded is the coexistence of an epithelioma, for which the disturbances in the circulation, etc., caused by the fibroma, afford a favorable soil. Their coexistence has been considered a rare occurrence, but since attention has been called to it the number of observations is constantly increasing. Verstraete concludes from his investigations that this coincidence can not possibly be ascribed to mere chance: the fibroma is invariably the oldest.

Presse Medicale (Paris), February 28, March 3 and 7.

Hepatic Variety of Typhoid Fever. H. ROGER.—The temperature-curve in the two observations reported was a gradual decline from 40.4 C. to 37 in seven days, with a slight rise of half a degree the third day. This peculiar curve was accompanied by pronounced gastro-intestinal disturbances, bilious vomiting, bilious diarrhea and hiccough, but the arterial pressure was not lowered; pulse strong and 100. Death was preceded in each case by dyspnea, semicoma and delirium. At the autopsy the intestinal lesions were slight; no perforation, but the liver was found completely degenerated, transformed into a bloodless, uniform homogeneous mass. Roger attributes the respiratory and nervous troubles to the hepatic insufficiency, similar to the syndrome observed with renal insufficiency, from retention of poison by suppression of the organ charged with the task of destroying or neutralizing them. He also ascribes the hypothermia to the hepatic insufficiency. Clinical experience and experimentation have shown an unmistakable connection between renal insufficiency and hypothermia, and Roger now establishes the same in respect to the liver, by the results of destroying the liver cells by injecting diluted acetic acid into the biliary passages of rabbits. The temperature falls at once and progressively to the exitus. This hypothermic action is probably not direct, but is merely due to the modification of the general metabolism of the economy by the functional suppression of either of these two important organs, kidneys or liver, which interferes with the nutritional interchanges: the true source of animal heat. The hypothermia in severe icterus is probably due to the same cause.

Simplified Method of Staining the Tubercle Bacillus. H. LAFFORGUE.—The advantages of the method proposed are that even a novice can not fail to obtain good results, as it is difficult to under-stain or over-color. First apply Ziehl's fuchsin hot, for an average of thirty seconds, then allow it to flow off by tilting the slide, and apply a 10 per cent. solution of tartaric or citric acid until the preparation is slightly pink. Then rinse once rapidly in alcohol and then in water, and restain with weak aqueous or carbolized solution of methylene blue. In staining sections the solution of tartaric or citric acid should be twice this strength.

Contusive Pneumonia. A. SOUQUES.—Traumatism, and especially traumatism of the thorax, may induce and localize acute, fibrinous lobar pneumonia, from the mere contusion. This fact has been established both experimentally and clinically. Souques relates another instance, and explains the mechanism as a reflex action. The reflex starts at the point of injury, reaches the bulbar centers, is reflected and returns to the lungs by way of the vagus. The consequence is a paralytic vasodilation of the pulmonary apparatus: the blood-pressure is lowered throughout the entire lung, thus offering a favorable soil for the pneumococcus, which is so frequently present even in healthy lungs.

Histologic Diagnosis of Rabies. VAN GEHUCHTEN.—The method of diagnosing rabies in a few hours, as described by Van Gehuchten in the communication summarized in THE JOURNAL of March 3, p. 559, consists in the histologic examination of one of the cerebrospinal ganglia. The alterations described are specific for rabies, and can be determined in less than an hour if frozen sections are taken, or in less than twenty-four hours if the ganglion is mounted in paraffin. For the latter process the ganglion is hardened in absolute alcohol, in which it is left for twelve hours, changing the alcohol once. It is then transferred for an hour to a mixture of alcohol and

chloroform, then for an hour to pure chloroform, and then placed for an hour in a mixture of chloroform and paraffin, and lastly in pure paraffin. The sections are then mounted on the slide and heated in the oven for a few minutes, and then passed through xylol, absolute alcohol and alcohol at 90°. They are then stained for five minutes with Nissl's methylene blue, differentiated in alcohol at 90°, dehydrated in absolute alcohol, then treated with essence of cajeput and xylol. Frozen sections are taken directly from the razor on the slide and dipped a few minutes in alcohol at 90 or 94°, and then stained as above. Van Gehuchten considers that the facts he has established in respect to the cerebrospinal ganglia revolutionize completely all our conceptions of the pathologic anatomy and physiology of rabies, as these lesions in the peripheral nerve ganglia explain, with amazing simplicity, the principal symptoms of this infection. The illustrations show the disappearance of the nerve-cells and their substitution by collections of small round cells forming cellular nodules, more or less distinctly separated from the adjacent parts. If the lesion is so pronounced that all the nerve-cells have vanished, the divisions between the rabic nodules also disappear and the entire ganglion seems to be formed of a new tissue consisting of small, closely packed cells, with traces of the atrophied ones.

Determination of Microbian Localizations. F. BEZANCON AND M. LABBE.—In a number of experiments a staphylococcus derived from a suppurative human arthritis, in spite of numerous inoculations, always retained its property of locating in the articulations. On the other hand, a staphylococcus which was passed through the heart in the second rabbit, lost this property and produced thereafter merely suppurative visceral lesions or septicemia. It seems probable that in growing in and inducing a lesion in certain organs the microbe acquires special properties of defense against the phagocytes and humors of this organ, and settles there by preference. The affinity of Eberth's bacillus for the intestinal tract, of the plague bacillus for the lymphatic system, of the pneumococcus for the lung, may be due to specific properties acquired by inherited phenomena of becoming accustomed to certain systems or tissues.

Revue de Medicine (Paris), February 10.

Toxicity of Urine and Blood Serum. L. BERNARD.—By adopting the following formula a standard for comparison is obtained: collect the fluid, urine or blood serum and inject it into the marginal vein of the ear of the animal, previously weighed. P=weight of animal; N=amount of fluid required to kill it; then $N \times 1000 \div P$=amount of fluid required to kill one kilogram = unit of toxicity. Rate = 5 c.c. a minute.

Etiology of General Paralysis. P. SERIEUX.—In 58 cases investigated syphilis was evident in 80 per cent., and sole factor in 31 per cent. The writer considers heredity the indispensable soil for the development of general paralysis. On this soil syphilis, lead or alcohol poisoning, vegetable poisons, rotten corn, microbian toxins and possibly the agents of autointoxication, may originate the disease in the predisposed. General paralysis should therefore be called not a parasyphilitic nor parainfectious, but, in more general terms, a paratoxic affection.

Lymphatic Ganglia with Epithelial Cancer. M. SOUPAULT AND M. LABBE.—Cancerous adenopathy is a reaction of defense. The ganglion struggles against the invasion of the neoplasm for a time, but once succumbing, it may become itself a center of dissemination. In a study of 34 cases of epithelial cancer, the ganglia directly connected with the cancerous territory were found intact in 16. Neither size, aspect nor consistency are any evidence of cancerous invasion, which histologic investigation alone can decide. Adenopathies at a distance have not the significance usually attributed to them in the diagnosis of cancer. Cancerous supraclavicular adenopathy in the course of a sub-diaphragmatic cancer is very rare. It was only noted once in 6 cases, and in this there was general metastasis. In 2 it was tuberculous. In most cases the ganglion has merely undergone sclerous transformation, or it may be due to syphilitic or some ordinary infection. Cancerous inguinal adenopathy with an abdominal tumor was noted once in 10 cases. The hypertrophy in the rest was due to sclerosis or tuberculosis. Inguinal adenopathy has no value in the diagnosis of cancer, owing to the frequency of ordinary causes and impossibility of differentiating it by clinical examination.

Semaine Medicale (Paris), February 28.

Gait in Organic Paraplegia. G. MARINESCO.—Another series of kinematograph views of the gait of normal and paraplegic subjects, similar to those mentiond in THE JOURNAL of July 29, 1899, p. 279, demonstrates that there are three kinds of paraplegia. In the first all the muscles of the lower members are in a condition of contraction or generalized hypertonia. There is no exaggeration of the reflexes, as the antagonist muscles, very much contracted, oppose the production of the reflexes. In the second variety of paraplegia the contraction is predominant in one set of muscles, although the antagonists are also contracted. These cases are accompanied by an exaggeration of the reflexes, the intensity varying with the amount of contraction of the antagonists. In the third variety the flexor muscles of the leg are hypotonic while the extensors are hypertonic. In these conditions the reflexes are much exaggerated. Marinesco is inclined to believe that the difference in the contraction corresponds to a difference in the localization of the lesion. The nerve routes of the flexor and extensor function probably pass separately into the spinal cord. A mechanism of stimulation and another of inhibition become evident in studying the gait. The hypotony of the flexor muscles is explained by the suppression of the stimulation from the brain, while retention of motility of the extensors with hypertony depends on the retention intact of the stimulating fibers. One of the practical conclusions of this study is that the third variety of paraplegia, mentioned above, is not due to compression but to an intrinsic lesion of the spinal cord, and consequently surgical intervention is useless.

Berliner Klinische Wochenschrift, February 19.

New Method of Caring for Umbilicus Neonatorum. A MARTIN.—A wet compress is first placed over the umbilicus, and then, when convenient, the cord is tied tight on a level with the skin, with a sterile silk thread, and 1 to 1½ cm. below this the cord is seized and cut with a pair of ordinary curling tongs, heated red-hot. The spot is covered with gauze and dressed as usual. There is no hemorrhage and by the second day the umbilicus subsides to the level o fthe skin. By the fourth to fifth the cord and ligature drop off and the skin closes over the umbilicus to a pinhead point. Results in thirty children thus treated have confirmed the advantages of this procedure. All danger of infection is obviated even in the most inexperienced hands, and the curling tongs can be easily procured. Martin pleads for the general adoption of this method.

Clinical Significance and Experimental Production of Granular Degeneration in the Red Corpuscles. E. GRAWITZ.—In the course of this research over 200 patients were examined and innumerable healthy persons. The results establish that the basophilous granulations noted occasionally in the red corpuscles, are exclusively a degenerative change which may be due to various causes, and is nothing specific, but merely a symptom. The granulated cells are particularly numerous in pernicious anemia, with cancer from which there is absorption of toxic substances, in advanced leukemia and with lead poisoning. They were entirely absent in uncomplicated chlorosis—12 cases—in syphilis—21 cases—in advanced afebrile pulmonary tuberculosis without cavities—13 cases; and were never found with parenchymatous nephritis, contracted kidney nor cirrhosis of the liver. They evidently occur as phenomena of degeneration in diseases in which the action of substances poisonous to the blood is manifested in other ways, and they increase and diminish parallel with the intensity of the disease process. They are not found in the erythroblasts in the bone marrow, but first appear in the circulation, and although all the cells containing them do not necessarily die, yet the process indicates some injury to the cell which frequently terminates in its destruction. The granulations may appear in the cells before any morphologic changes are evident in the blood, and are thus an early means of diagnosing incipient anemia, or suggesting lead poisoning or cancer. Plehn has described similar basophilous granulations in the blood of Europeans recently arriving in equatorial Africa, which he believes to be immature forms of the malarial parasite as the

subjects all had pronounced anemia, although with no other manifestations of malaria or dysentery. Grawitz announces that he has succeeded in producing these same granulations in mice by submitting them to the action of heat—eight days at 37 to 40 C.—an dthat the granulations in Plehn's cases are probably degenerative changes in the blood produced by the high temperature. He appeals to all physicians in tropical countries to look for these granular degenerations in the blood. The technique is simple: fixation of the dry preparation and brief staining with methylene blue. He also begs that the deposits of iron in the liver in Europeans succumbing to anemia without evidences of parasitic infection, be made a special subject of investigation, to determine further details in respect to the degenerative changes in the reds.

Can Brushes Be Sterilized? A. WINTERNITZ.—Tests with a large number of brushes showed that boiling them for ten minutes in a 1 per cent. solution of soda, and keeping them afterward in a 1 per 1000 solution of sublimate, sterilized them in respect to the pathogenic germs usually encountered, with complete success and without injury to the brush. Unusually resistant spores were not destroyed.

Sunshine and Influenza. J. RUHEMANN.—There were but nine and a fraction hours of sunshine in Berlin during January, and Ruhemann endeavors to establish a connection between this fact and the epidemic of influenza.

Mittheilungen A. D. Grenzgebieten (Jena), v. 4 and 5.

Hematuria from Normal Kidneys and with Nephritis. B. NAUNYN.—An observation is described in which excessive, intermittent hematuria in a healthy woman, 30 years old, ceased after the application of a bandage applied as for wandering kidney, and the kidneys have remained normal, the subject in health during the twenty-five years since. This case shows that hematuria from a normal kidney is possible, and Naunyn adds that nephritis may recover spontaneously. Nevertheless, he considers Israel's proposed nephrotomy for nephritis a great progress, and that it opens a prospect for the treatment of Bright's disease by nephrotomy also. In fact, Harrison has reported three cases of Bright's disease favorably influenced by incising the kidney to relieve the tension and congestion.

Monatsschrift f. Geb. u. Gynaekologie (Vienna), January.

Anatomic Evidence of Accomplished Defloration. A. HABERDA.—Long medicolegal experience and examination of many cadavers have convinced Haberda that in many instances it is impossible to state positively whether coitus has or has not occurred. The size and elasticity of the hymen vary in wide limits, and a lesion does not necessarily accompany the first coitus. The natural notches in the hymen may deceptively simulate healed traumatic lacerations. An absolute space in the edge of the hymen at one or more points is the only reliable indication, the edges of the notch forming an evident diastasis and the wall of the vagina exposed at the bottom for even a minimal extent. In his experiments on cadavers he found one hymen that would allow the passage of a glass tube 4.4 cm. in diameter and 14.8 in circumference, and then contract to its original size without a trace of injury.

Pelvigraph and Kliseometer. J. NEUMANN AND H. EHRENFEST.—Two simple instruments are described and illustrated by which, with a pencil in one arm of the instrument and a spirit level, it is possible to draw a diagram of the pelvis, giving the various measurements with mathematical exactness. They have been tested repeatedly at Schauta's clinic with gratifying results.

Treatment of Retroversio-Flexio Uteri. J. HALBAN.—This bulky number of the *Monatsschrift* is a *Festschrift* in honor of Schauta's twenty-fifth professional anniversary, and reviews the work accomplished in his clinic in various lines. Halban studies the remote results in 83 cases of retroversio-flexio uteri operated on for this alone, and 64 for this with other complications, out of 4000 treated during 1892 to 1898. The retroversio is frequently corrected by a colpeurynter filled with mercury, inserted in the vagina, the pelvis elevated. If this, combined with manipulations and a suitable pessary, does not overcome the retroversio, then surgical intervention follows, and through the vagina if there are no complications. If laparotomy is indicated on other accounts, then ventrofixation is done. If the vaginal route is followed, the ligaments are shortened in case conception is still possible; if not, Duehrssen's intraperitoneal fixation is done. The Alexander-Adams method is reserved for cases of uncomplicated retroversio in a virgin, or when inguinal hernia is to be operated on at the same time. A number of the women have borne children since; one has had three pregnancies.

Treatment of Extrauterine Pregnancy. O. T. LINDENTHAL.—In the 251 cases observed in nine years, 118 were treated by celiotomy, carefully removing all the products of the pregnancy. Schauta considers operation indicated in all cases of uninterrupted pregnancy, with hemorrhage or septic accidents. In 123 repose, compresses, dieting and purging relieved the symptoms, and the patients were dismissed with instructions to return at the slightest indication of trouble.

Allgem. Medicinische Central Zeitung (Berlin), February 21.

Cumol Catgut or Hemp for Sutures. STICHER.—The technique of preparing this suture material is to gradually warm and dry the catgut, in rings, at 70 C. for two hours. It is then put in a perforated porcelain vessel and this vessel placed in cumol for an hour, the vessel containing the cumol standing in a sand bath kept at 155 to 166 C. A wire netting in two parts forms a cover over the cumol to prevent it from igniting, and holds the thermometer upright between the two halves. The porcelain vessel containing the cumol is then transferred with platinum hooks to petroleum benzin and left for three hours, when the benzin is evaporated. The porcelain vessel is then placed in alcohol, in which it is kept till required for use. Hemp prepared the same way is used for ligatures and fixations.

Muenchener Medicinische Wochenschrift, February 27.

Alexins and Specific Bactericidal and Hemolytic Action. H. BUCHNER.—The unstable, non-heat-resisting alexins have no specific character. The heat-resisting antibodies are the specific elements, Buchner now asserts. He ascribes the specific action of the antibodies, and therefore all specific immunity to the specific attraction and the resulting combination between the "reaction bearers" and the specific antibodies. This mutual specific affinity and the resulting combination is not a mere chemical combination, but seems to be a special phenomenon, possibly more of the nature of a crystallization. He refers to Metschnikoff's recent work summarized in an editorial in THE JOURNAL of March 10, in which "antispermotoxin" was produced in the body of an animal which had been deprived of its internal sexual organs, and hence, of all sperm cells, observing that these experiments show that it is not the specific cells which are stimulated by the spermotoxin that produce the antibodies. The latest research, he continues, has established that specific immunization against erythrocytes, ciliated epithelium, against spermatozoa, leucocytes, etc., occurs much more readily than heretofore supposed. The solution of the problem of the specific nature of the antibodies is not to be sought along the line of preëxistent molecular groupings in the body—Ehrlich's "Seitenketten"—assumed to be formed in excess in consequence of the specific irritation, and then performing the office of antibodies. It is more probable that the individual specific elements of the foreign erythrocytes, bacterial cells, toxins, etc., introduced into the body, are transformed into a non-toxic, no longer a foreign substance. This may occur by the accumulation on the element of certain groups of molecules to which it serves as the nucleus. The attraction of the antibody for the specific substance—on which all specific and immunity phenomena depend—would then be explained by the chemical homogeneity between the antibody and the specific substance. It would not be a chemical antagonism, as between an acid and a base, but an attraction of like to like, such as we observe in polymerization, in crystallization, in the construction of starch grains and probably also in many or most cases of organic growth.

Treatment of Pulmonary Tuberculosis with Subcutaneous Injections of Ol. Camphor. Officin. Pharm. Germ. B ALEXANDER.—The injections are made once a day: 1 to 3 cg. each in febrile cases, and in afebrile the same, or 1 cg. every day for four days and then suspended for eight. There are no counterindications, and the treatment can be kept up for weeks and months. An experience of eleven years has only

confirmed Alexander more and more in the remarkable benefits to be derived from this treatment. He relates a number of convincing observations, all in advanced stages, the improvement evident after a couple of injections, the subjects restored to their business.

Cure and Prevention of Backward Displacements of Uterus During Puerperium. RISSMANN.—The chief points urged in this communication are that the lying-in patient should recline on the side and occasionally lie with face down; also that she should be examined soon after she gets up, and earlier than this in case of abortion. Women who have had backward displacements of the uterus previous to the puerperium should begin to wear a pessary the fifth day.

Tuberculosis of the Stomach. M. SIMMONDS.—In 2000 autopsies of tuberculous subjects in the last ten years, Simmonds, prosector at Hamburg, only found secondary tuberculous ulcus ventriculi in eight. Hematogenic miliary tubercles in the stomach walls are, on the other hand, quite frequent, and they are found in the three coats indiscriminately.

Prager Medicinische Wochenschrift (Leipsic), February 15.

Alcohol Therapeutics of Local Tuberculosis. L. NEUSTADL.—A young man, with tendovaginitis and osteitis tuberculosa of the left hand, had been advised by Woelfler, Maydl and the writer to have the hand amputated, on account of the extent and progressive character of the lesion when Bier's communication in respect to the therapeutic action of alcohol, confirming Salzwedel's experience, suggested alcohol treatment as a last resort, and the hand was dressed daily with compresses wet with alcohol. The swelling and pain promptly subsided; the fistulæ healed, and the secretions dried up almost completely, while the lost functions of the hand were restored. In six weeks the cure was practically complete. The shrivelling of the skin and a slight smarting at first were the only drawbacks Angerer has also reported ten cases of local tuberculosis thus treated, with three cured and the rest remarkably improved.

Centralblatt f. Innere Medicin (Leipsic), January 13.

Origin of Hemoglobin and of Red Corpuscles. F. APORTI.—The action of intravenous injections of iron and arsenic has been the subject of special study at the Parma Medical Clinic during the past four years. This communication reports, as the result of this clinical and experimental research, that there is an evident independence between the formation of hemoglobin and of the red corpuscles; also that certain substances stimulate the formation of red corpuscles, and chief among these is arsenic, while others have a decided influence on the formation of hemoglobin. Iron is the most effective in this respect.

Wiener Klinische Wochenschrift, Feb. 15, 22 and March 1.

Alimentary Glycosuria. E. RAIMANN.—This communication first establishes the paradoxical fact that the more sensitive the tests that have been used to detect glycosuria, the more inexact the results, as the existing physiologic glycosuria has not been taken into account, while this varies with different individuals, and interferes with the interpretation of the reaction. Raimann therefore urges that zero be established at the point where the existing physiologic glycosuria first gives an unmistakable reaction to the test. Starting from zero at this point the information derived is mathematically correct and can be used for comparison of the "diabetic predisposition" in individuals, as alimentary glycosuria is a direct test of the general function. It indicates a permanent, constitutional lowering of the limits of assimilation and can be accepted as an indication of degeneration in the chemical sense.

Landry's Paralysis. J. KAPPER.—A typical case of Landry's paralysis was examined bacteriologically *in vivo*, and the central nervous system and peripheral nerves studied in respect to their pathology and histology, four hours after death, with entirely negative results in each case. Paralysis of the larynx had been noted, internus and transversus, such as we are accustomed to associate with hysteria. The etiology seems to be an intestinal autointoxication due to exaggerated putrefactive processes. The evidence of products of putrefaction in the urine and the transient improvement that followed copious evacuation of the bowels, confirmed the theory of autointoxication, and also the negative findings with such fulminating clinical symptoms. Measures to combat intestinal putrefaction are therefore indicated in this disease.

Suture of Bladder with Sectio Alta. G. LOTHEISSEN.—The general impression now seems to favor suturing the bladder, especially in operations for removal of foreign bodies and calculi, in young subjects with normal urine. Convalescence is materially shortened by it. Bierstein noted thirty-one days as average of convalescence without suture, and eleven to thirteen with. In the three cases described, convalescence lasted fourteen to eighteen days. The dangers of intervention are not increased by the suture. Angerer always sutures the bladder in these cases and has not lost a patient as a direct result of operation. Radumowsky has reported 43 cases, all sutured, with first intention in 40. In 137 observations reported in recent literature, first intention is recorded in 96. The mucous membrane should not be included in the suture.

Traumatic Aneurysm of Brachial Artery and Division of Median Nerve: Extirpation of Artery and Suture of Nerve: Recovery. K. SINNREICH.—Compression is indicated as a preliminary measure unless the trauma is so recent that an after-hemorrhage may be induced or rupture of the sac is imminent. Compression alone may cure the aneurysm in favorable circumstances. Besides the personal observation described in full, thirty-four are tabulated from the literature. They emphasize the benefits of extirpation, especially for aneurysms of the upper arm, also for those with gangrene or coexisting injury of the median nerve. In Gripal's case failure to extirpate led to gangrene requiring amputation. In several cases extirpation of the aneurysm resulted in the retrogression of tumors or gangrene of the member below. Philagrius announces the following counterindications to operation: 1. Fresh traumatic aneurysm, arterial hematoma, as a wall for the sac has not yet been formed. 2. Severe infection of the wound which caused the aneurysm, as the danger of the spread of the wound infection is enhanced by every complicated intervention. 3. Subcutaneous rupture of the sac.

Societies.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 5-8.

Medical Association of the District of Columbia, Washington, April 5.

Western Ophthalmologic and Otolaryngologic Association, St. Louis, April 5-7.

Tennessee State Medical Society, Knoxville, April 10.

Florida State Medical Society, Orlando, April 11.

Mississippi State Medical Association, Meridian, April 11-13.

Medical Society of California, San Francisco, April 14-16.

Medical Association of Alabama, Montgomery, April 17.

South Carolina Medical Association, Charleston, April 18.

Louisiana State Medical Association, New Orleans, April 19-21.

Medical Association of Georgia, Atlanta, April 18.

Medical and Chirurgical Faculty of Maryland, Baltimore, April 24.

Texas Medical Association, Waco, April 24.

American Proctologic Society, Washington, D. C., May 2 and 3.

Illinois State Medical Society, Springfield, Ill., May 15-17.

Association of Military Surgeons of the United States, New York City, May 31 to June 2.

Berks County Medical Society.—This Pennsylvania Society held a meeting at Reading, March 13, and the committee on legislation presented a report denouncing the provisions of the vivisection bill now pending before Congress, which was unanimously passed.

Congress Against Tuberculosis.—This congress will meet at Naples, Italy, April 25-28, 1900, under the presidency of his Excellency Minister Baccelli. There are sections on etiology and prophylaxis, clinical pathology, therapeutics and sanatoria. Physicians, naturalists, engineers, as well as representatives of the social and philanthropic sciences are entitled to take part.

California Academy of Medicine.

February Meeting, San Francisco.

ZOSTER OPHTHALMICUS, WITH PARESIS OF FACIALIS.

DR. DOUGLAS W. MONTGOMERY presented a patient with this condition, which has lately received considerable attention from Brissaud and Klippel and Aynaud. The patient said he first became ill on Dec. 24, 1899, with shooting pains in the upper orbital region, and for a couple of days he was very feverish. On the morning of the 25th a vesicular rash appeared, at first at the inner canthus of the right eye, then on the outer surface of the upper eyelid; it then broke out on the forehead and scalp as high up as the crown of the head. When he came to the University of California Clinic, Jan. 26, 1900, the skin of the upper part of the right side of the face was red, smooth and glossy; there was a scattered eruption on the scalp, also limited to the right side, and extending from the forehead back nearly to the whorl, and consisting of smooth, vesicular, brown crusts such as are left after drying herpes. In the center of the forehead there was a small, deep ulcer, which would probably heal without scarring. The whole area of the eruption was fan-shaped, extending upward from the right eye; there was no demonstrable adenopathy. The history of the sudden onset of the affection, with its severe pain and fever, its unilaterality, its situation, the fan-shape of the eruption, spreading upward from the orbit, the circular crusts of the scalp, looking like dried vesicles, and the involvement of the eye, all pointed to a diagnosis of herpes zoster. The small, deep ulcer must also be mentioned as somewhat strengthening the diagnosis of zoster. It was noticed that the right side of the forehead was smooth, a smoothness which was not accounted for by the swelling, and that the left side had the usual wrinkles, while the patient, when asked to elevate the eyebrows, was able to do so very imperfectly, on the right side. No other muscles supplied by the seventh nerve were affected. Previous to his present illness he said he had never noticed any difference in the wrinkling of the two sides of the forehead.

He was sent to Dr. Von Adelung for a more detailed neurologic examination. The Doctor found that touch was abolished in an area bounded by a line commencing at the external canthus of the eye, running backward toward the ear within the hair line, then up well within the hair line to the median line of the forehead to the internal canthus, and then backward to the point of commencement, including the upper but not the lower lid. Pressure sense was retained imperfectly in this area; analgesia was present and a pin could be pushed to the bone without giving pain; temperature sense was abolished; there was motor paresis of the right frontalis; variable contraction to the faradic current, and galvanic contraction was also visible; K.C.C. greater than A.C.C.; during forcible contraction of the orbicularis palpebrarum the right upper lid trembled; the levator palpebrarum was normal. Dr. George W. Merritt examined the eye and found that the corneal reflex was normal, that the motions of the eye were unimpaired, and that vision was 20/200 in the affected eye. The impairment of vision was due to a blue hazy spot in the cornea, over the center of the pupil, which afterward cleared up rapidly; with the clearing up of the spot, the sight continued to improve.

According to Eberstein, paralysis of the facial nerve is most frequently observed in zoster occipito-collaris, and he mentions paralysis of the facial as occurring rarely in zoster ophthalmicus. Klippel and Aynaud have gathered seventeen observations of paralysis of the facial in zoster ophthalmicus. They eliminated all those cases of zona occurring in lesions of the petrous bone, or other lesions essentially apt to give rise to facial paralysis, and included only true herpes zoster. According to the observations, facial paralysis usually occurs during the first days of the eruption; it is unilateral and is situated on the same side as the zona, and there is rarely any other paralysis. It is their opinion that facial paralysis is due to the same infection that causes the neuralgia and the eruption, and they think that the neuralgia, the zona and the facial paralysis form three symptoms of the same disease.

DR. GUIDO CAGLIERI referred to a patient with what he supposed was zoster at the region of the anterior superior spine. There was neuralgic pain shortly followed by the eruption. The patient had had sugar in his urine for some years, but whether that had anything to do with it or not he could not say.

DR. J. F. MCCONE asked whether, when adenopathy occurred, it was found to be in those glands which would naturally drain the lymph from the affected area.

DR. D. W. MONTGOMERY said that the theory that the adenopathy was a subsequent affection to the nerve and skin affection was formerly held, but of recent years has been greatly changed. Many observers have noticed the adenopathy occurring simultaneously with the neuralgia and before or with the appearance of the eruption.

DR. HAROLD BRUNN asked whether the infection might not be first in the nerves.

DR. MONTGOMERY said that Dr. Hay collected considerable material on this subject, some time ago, and it was his opinion that the infecting germ occurred very early in the nerves. At least one case was noted in which the paralysis was the first symptom, though it may be that the germs are first to be found in the glands, and that from there the infection goes to the nerves and the skin. The older theories are being almost reversed.

DR. H. J. HUNKIN recently saw a patient who came complaining of severe pain in the breast. The glands of the axilla were enormously enlarged. He could not satisfy himself that the nipple was retracted, but the picture was fairly good of cancer, until a few days later the eruption appeared.

DR. WALLACE I. TERRY asked what the treatment was in this case.

DR. MONTGOMERY said he used simply a protective dressing of yellow oxid of mercury ointment. Collodion is recommended, but he thinks that if we are right in supposing this to be an infectious disease, painting the skin with collodion would not be proper. Blisters, freezing, etc., have been used as applications to the spine, and it is possible that they may have some good effect; however, he thinks they simply fill in the time which elapses between the onset of the disease and its natural ending.

TUBERCULAR KIDNEY.

DR. DUDLEY TAIT presented a patient on whom he had operated for this condition, removing the kidney and the entire ureter. The history of the case will appear in full in THE JOURNAL.

DR. PHILIP KING BROWN showed characteristic tuberculous lesions.

He detailed the operation and subsequent history, the points of history in the case being the perirenal tuberculous infiltration, a rare and troublesome condition, complicating both the operation and the subsequent treatment; the absence of vesical lesions. The latter throws some light on the much discussed cause of certain symptoms of renal tuberculosis: cystalgia, painful spasms of the body and neck of the bladder, pollakiuria, frequent, uncontrollable, and painful micturition. Guyon ascribes the foregoing condition to coexisting infiltration of the vesical mucosa by Koch's bacillus. Le Dentu and most of the English authors—Newman, Roberts, Morris—explain all the symptoms by a renovesical reflex. The case reported was strong evidence in favor of the reflex theory.

Philadelphia County Medical Society.

Feb. 28, 1900.

SIPHONAGE OF PARTITIONED BLADDER.

DR. A. J. DOWNES read a paper on this subject, and demonstrated a new instrument—the separate urine siphon. In many doubtful cases it is important to obtain the urine from separate kidneys. For this purpose the Harris urine segregator has been most employed. Many years ago he resorted to this instrument to determine the diagnosis, with positive results, in a tuberculous kidney which was removed, beneficial effects following. On further use of the instrument he decided that the suction apparatus was not altogether necessary, and has devised an instrument somewhat like the Harris. It con-

sists of two parts, or two separate catheters curved very much like the metal catheter; they can be rotated after introduction into the bladder in all directions. At the end of each part an opening is made so as to facilitate introducing the beak near the orifice of the ureter. The bladder should be irrigated before the instrument is inserted. He has found that little if any irritation follows its use.

DR. H. M. CHRISTIAN considers these instruments of value in determining pyuria, but the catheterizing cystoscope always requires careful work to be of service. In one instance he obtained cloudy urine from both sides of the bladder, by the Harris segregator. The great fallacy in the use of these instruments is in the liability to draw off material from the vesical trigone instead of the ureter. He thinks the instrument exhibited by Dr. Downes has some advantage over the Harris instrument, since it permits a wider separation of the parts about the vesical trigone.

DR. W. L. RODMAN expressed the opinion that Dr. Downes' instrument possesses some advantages over the Harris.

EAR DISEASE IN CHILDREN.

DR. GEORGE C. STOUT, in his paper on this subject, detailed the anatomy of the external ear in children and its difference as compared with that of adult life. He thinks fully two-thirds of the diseases of the middle ear met with in adult life result from neglected diseases of the parts during infancy. The most common cause in children is measles, scarlet fever, diphtheria, typhoid fever and influenza. Furunculosis is a common condition met with. In this incision should be practiced, and afterward the parts should be rubbed with oxid of mercury ointment. The use of sweet-oil and laudanum introduced into the ear is to be deplored. In removing hardened wax, it might be best to first moisten with a weak solution of bicarbonate of soda in water and afterward syringe out carefully. Foreign bodies should be removed carefully with a syringe with a long point. As a rule poultices are not to be advised for inflammatory diseases in this region.

DR. B. A. RANDALL spoke of the fees of specialists in diseases of the ear. He thought the patient's circumstances should be stated by the attending physician, and in that way often prevent overcharging. Regarding examination of the ear, often no instruments are necessary, as the child may be carried to a window and examined by direct sunlight—the latter falling over the shoulder of the examiner.

DR. SOLOMON SOLIS COHEN advises that the child be placed in a horizontal position, when the parts will often come into view without much difficulty.

Baltimore County Medical Association.

Catonsville, Md., March 15, 1900.

LEGAL ASPECTS OF INSANITY.

JUDGE N. CHARLES BURKE, of Towson, presented this subject. That insanity increases with the advance of our civilization out of all proportion to population, he said, seems to be a well-established fact. In 1850, in Great Britain, there was one lunatic to about 1000 persons, and only thirty years later the Lunacy Commission of Great Britain reported one to 357 in England and Wales, that is, nearly three times as many. In New York there is one to 384 persons. His personal experience on the bench is that mental diseases are yearly becoming more frequent. This experience justified the statement that the aid and assistance of the upright, conscientious and competent physician is of the greatest value and importance, and in some cases absolutely indispensable to the administration of justice. He defined insanity in a general sense as mental unsoundness. Insanity, its causes and effects may be more exactly defined and indicated as an abnormal state of one's superior mental powers, he said, viz.: his reason, intellect and will, produced by disease of the brain, which state of the mental faculties is manifested by disorderly and unsound or abnormal actions. It is with illusional or delusional insanity that the greatest difficulty, perplexity and obscurity is experienced by the legal and medical professions. And such questions must be approved by the physician, the judge and the lawyer, with clear and well-defined conceptions as to the nature and characteristics of the disease. Clear distinctions must be drawn and recognized between what is known as medicine and law as an insane delusion and peculiarities and eccentricities of character, and the thousand and one species of delusions entertained by men on all manner of subjects. As so many people have become of late the victims of this latter species of delusions, there may be much truth in the declaration of the Hon. Champe Clarke, that what this country most stands in need of just now is a strong, vigorous and robust fool-killer. Such a man would have a big job on hand. The judge has examined many definitions on insane delusions, but to his mind the clearest and the most satisfactory is the one given by Judge Cox in the Guiteau case: "An insane delusion," he said, "is an unreasoning and incorrigible belief in the existence of facts which are impossible absolutely, or at least impossible under the circumstances of the individual."

Certain schools of medicine have maintained the existence of a moral insanity which should exempt from all criminal responsibility—in which a man's reason, intellect and understanding may be perfectly sane and unimpaired; in which he may know exactly what he is doing; in which he may know the consequences of his act as implied to himself; may know that it is morally and legally wrong, and yet, by reason of a perversion or disease of the will, he can not help doing it. This species of insanity is maintained by Pritchard, Mandsley and their followers, and results from the false and materialistic assumption that the will is merely a nerve-center, and that in consequence of the disease of this nerve-center, the will becomes diseased and insane, "though the reason is at the same time perfectly sane, knows the action to be wrong, and reprobates the deed." He said that such insanity, it is manifest, if it existed or could exist, would be most dangerous to society. When all other defenses fail, or when there is no other defense to be made, it would become the ready and safe refuge for the most atrocious criminal. He therefore denies the existence of such insanity, as the first principles of a sound psychology demonstrate the impossibility of such a state, and every principle of sound ethics forbids it. It is not recognized in England and has been repudiated by most of the courts in this country. It has been recognized in one case in Iowa and one in Connecticut, also in one or two other states, and has taken its firmest hold exactly where we should expect to find it do so—in Kentucky. It has been expressly repudiated by the Court of Appeals of Maryland.

His conclusions were: 1. Strictly and properly speaking, insanity is not a physical disease, but is the abnormal state of man's higher mental powers produced by disease of the brain. 2. The general test of mental disease is lesion of the brain. 3. The general test of insane mental action is insane delusion. 4. The law of Maryland does not recognize mere moral insanity as an excuse for crime. 5. Where the defense of insanity is interposed, the accused is entitled to an acquittal if, on the whole evidence, the jury has a reasonable doubt as to his criminal responsibility as defined by the law.

A dinner followed the meeting and the members and guests inspected the hospital, the methods of water-cure for nervous diseases and the electrical apparatus, under the guidance of Drs. J. Preston and T. W. Keown, physicians in charge.

New York County Medical Association.

Feb. 19, 1900.

REPORT OF CASE OF RUPTURE OF PERINEUM IN COITUS.

DR. R. ABRAHAMS reported this case occurring in a woman of 26 years, who had been recently married. After about six weeks of married life, during which sexual intercourse had been had six or eight times, there had been, on one of these occasions, a considerable hemorrhage, associated with moderate pain. The next morning the woman had been surprised to find feces escaping through an opening above the anus. On examination, Dr. Abrahams found that although the external genitals, the vagina and the uterus appeared to be normally developed, and there was no evidence of her having had prolapsus recti, hemorrhoids, ischiorectal abscess or any inflammation of the perineum; there had been a complete and clean-cut rupture of the perineum as though it had been made with a surgical instrument. Two fingers could be passed through an opening which was most accurately described as a rectoperineal fistula.

The patient could not be kept under observation, so alarmed had she become at the prospect of an operation for the relief of her condition.

DR. EDWIN GAILLARD MASON said that he had seen a similar case at St. Mary's Hospital, only that in that instance the rupture had taken place at the first coitus. The case had not come under obbservation for some months, and during this time sexual intercourse had taken place through the rent.

ANESTHETICS.

This was the subject for special discussion at this meeting.

Dr. John A. Wyeth read a paper on "The Selection of the Anesthetic in Surgery," Dr. Thomas L Bennett discussed "The Amount of the Anesthetic;" Dr. S. Ormond Goldan read a paper on "Nitrous Oxid and Its Modifications for Prolonged Surgical Operations;" and Dr. James P. Tuttle took up "Experience with Ethyl Chlorid in General Anesthesia." These papers were printed in last week's JOURNAL, the discussion accompanying.

Cincinnati Academy of Medicine.

March 5, 1900.

CONGENITAL MILIARY TUBERCULOSIS.

DR. B. T. LYLE presented specimens illustrating this affection. On Dec. 2, 1899, Bettie P., colored, aged 32 years, single, was admitted to the Cincinnati Branch Hospital for Consumptives. She complained of a severe cough, sore throat and incontinence of urine. She had never been sick before, but admitted alcoholism. Two years ago she had hemoptysis, and for about a year night sweats. She was pregnant, believing herself seven months advanced. One child, 18 months old, died four months before she applied for admission. Physical examination revealed cavities in the upper and middle lobes of the right lung, and areas of consolidation throughout the remaining lung tissue. She died on December 17, and a post-mortem examination confirmed the above.

Two days previous to death she gave birth to a female child which appeared to have been born at full term. The child weighed 3½ pounds, and was very weak. In the course of two months its weight increased to five pounds, and then declined. The temperature, which was subnormal during the first month, increased during the remainder of its life, running as high as 102 degrees at times. The child died March 3, 1900. Post-mortem showed a general tuberculosis, the lungs, liver, and, spleen being filled with myriads of miliary tubercles. The kidneys also shared in the change, similarly. The bronchial glands were greatly enlarged. Unfortunately the Doctor had not seen the placenta, and the nurse described it as normal, but he thought that the infection was *in utero*, and for that reason presented the specimen.

Toronto Clinical Society.

March 7, 1900.

CASES ILLUSTRATING PROCEDURE IN TUBERCULOUS DISEASE OF THE KNEE.

DR. A. PRIMROSE presented two male patients, one of 19 years, the other of 8. The first was a complete excision and the second erasion. In 1897 the disease first appeared in the man and was apparently cured under the ordinary treatment of rest and the application of the Thomas splint. The trouble reappeared in February, 1894, when he first came under the care of Dr. Primrose. The disease was very far advanced in the joint, flexion to the extent of 100 degrees existing, with very little pain. Improvement was noted until February, 1899, when the trouble broke out afresh. One sinus existed in the popliteal space and one to the outer side of the joint, both discharging pus. The specimen of bone exhibited consisted of the lower end of the femur and the upper end of the tibia, each about an inch in length, together with the posterior part of the patella. The operation was performed with an U-shaped incision, the large flap being turned up, the joint exposed, and the mass of diseased bone removed. Excavations were scooped out in both bones until healthy bone was reached. The anterior wound healed up well. In order to secure union and osseous ankylosis wiring was performed, but on one side alone, owing to the collapsed condition of the patient under the anesthetic. There is now present just the amount of flexion one would wish to have, and firm ankylosis, so that he can put the foot firmly on the ground. In December, 1899, he had a small sinus in the popliteal space, and it was determined to enlarge it. A small cavity in the bone was found and curetted. The sinus was stretched forcibly, and in the procedure the external popliteal nerve was implicated, setting up an extreme neuritis with great pain on touching the sinus; there was complete paralysis of all parts supplied by that nerve. This subsequently returned to normal. He had reaction for faradic electricity, and while at first it took 25 milliamperes to cause any contraction, the muscles now react to less than 12, which gives an extremely favorable prognosis. Sensation has returned, but he can not extend the toes.

The case of the boy was one with tuberculosis of the synovial membrane, apparently confined to the membrane alone. After the ordinary treatment for a considerable time, with no improvement, the patient getting progressively worse, the surgeon decided, in May, 1898, to do erasion as described by Mr. Cheyne, viz., the H-incision. The patella was sawn across and two flaps turned up and down. The disease had invaded the membrane, the lateral and the crucial ligaments. The joint was thoroughly cleaned out and a plaster-of-Paris splint put on. The wound healed by first intention. Dr. Primrose stated that he had expected ankylosis, but the boy has a good degree of movement, and is walking wonderfully well. The limb on the affected side is half an inch longer than on the sound side. The surgeon thought this due to irritation at the line of the epiphysis, causing increased growth, not going on to disease or destruction of the bone—an extremely interesting point.

SERIOUS WOUND OF SKULL AND ACROMION.

DR. WILLIAM OLDRIGHT exhibited a boy of 12, who had sustained nine scalp wounds in the occipital region, inflicted by a bread knife having a blade thirteen inches in length. A triangular piece of bone 1½x1¾x1¾ inches was cut out in the cranium. There was also present a large cicatrix over the acromion process, which had been cut through. The strength of the shoulder-joint was not impaired in any way.

SYMPOSIUM ON HYSTERIA.

DR. J. T. FOTHERINGHAM read notes of a case of hysteria occurring in a woman of 18 years. As regards her family history, the eldest child is living at 23 years, an imbecile. Two others died in infancy, of tuberculous meningitis. Two months before the attack of hysteria, the patient was suffering from rheumatism, in the ankles, shoulders and other joints of the body. The present condition developed gradually. The breath was occasionally stertorous on inspiration. The circulatory and genito-urinary systems were normal. Ankle-clonus was especially marked in the right leg, an unusual symptom, because not usually seen in hysterical cases. Peculiar postures were adopted while in bed; and all speech was conducted in whispers. She apparently suffered from severe photophobia; but when the windows were darkened she would be noticed watching from under the bedclothes. Hearing was abnormally acute. The treatment consisted in removal to a private hospital; hyoscin; and valerianates of iron, quinin and zinc; and plenty of good food. She has been well for some months and now works in a shop. Other points noticed in the case were the absence of the hysterical fit, no serious moral perversion and no delusions.

DR. W. H. PEPLER contributed notes of a case of hysterocatalepsy occurring in a girl of 5 years. The family history was negative, though the father is of a neurotic temperament. She was a full-term child, walked at 10 months, talked at 9, had measles at 2 years, with no complications and no sequelæ. One evening she refused some article of food, and suddenly fell forward with the head and arms on the table. On the arrival of the physician, she presented the normal appearance of health, but was seemingly asleep. When raised the arm would remain in the horizontal position about thirty seconds, and then gradually fall. The condition in the lower limbs was not so marked. An enema and quiet secured return to consciousness in two hours, with no other attacks since.

THE JOURNAL OF THE
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61 MARKET STREET, - CHICAGO.

SATURDAY, MARCH 31, 1900.

WHAT SHALL WE CLASS AS ETHICAL PREPARATIONS?

With the assembling of the Convention for the Revision of the U. S. Pharmacopeia, in Washington, D. C., May 2, next, there is a revival of interest in therapeutic matters. With the specialization in medicine there is a tendency toward medical nihilism, which it may be well for the profession to guard against. The situation pharmaceutically is not encouraging, and it is hoped that the revision of the Pharmacopeia will at least afford an opportunity to awaken interest among medical men to the anomalous condition that exists in medical prescribing. The great increase in the number of proprietary remedies, often of secret composition, designed for medical prescription, is becoming a burden to the physician—not that there is no room for new remedies of merit, as well as for improved processes and forms of administration, but the endless multiplication of all sorts of medicinal mixtures which present neither novelty nor improvement over many an old-time combination is exceedingly trying. Many of these preparations have been exploited at the expense of the medical profession, which stood sponsor for them, only to enrich their manufacturers, who in most instances secured the formula from the prescription of some well-known physician. Their use, moreover, has a tendency to make prescribing a lost art and add to the difficulties of the young and inexperienced practitioners. In addition to this feature there has also been a tremendous increase in the so-called synthetic products, which are placed on the market under fancy or arbitrarily-selected names, in such great variety as to cause confusion in the many nearly similar terms and, in fact, make it quite impossible for anybody to keep in touch with the literature of this so-called "modern therapeutics."

Medical and pharmaceutical associations have endeavored, more or less successfully, to tentatively correct these abuses. The Board of Trustees of the AMERICAN MEDICAL ASSOCIATION and THE JOURNAL have at various times made honest efforts to discriminate in these products, with special reference to excluding such of them from the advertising pages of THE JOURNAL as may not respond to the standard of ethics of the medical and pharmaceutical sciences. The difficulty has always been, however, to know where to draw the line, as a literal interpretation of professional ethics applied to the patronage and the advertising of medicinal articles would exclude the vast majority of them.

In these days of competition the cost of exploitation is too great and the returns too uncertain to be depended on without some degree of reasonable protection; hence the desire to preserve the absolute control of medicinal specialties through the use of the copyright or trade-mark laws. These laws were designed simply to protect the priority rights of inventors under the common law to the ownership of certain designs, devices and symbols indicative of the origin or brand of some special manufacture. As such they serve a useful purpose, but in the United States the idea has been perverted and the trade-mark principle has been utilized to cover the name of the article. Therefore, since often the only name of the article is the arbitrarily-selected fancy one bestowed on it by the manufacturer, unlimited control and monopoly are frequently created.

The abuses of our patent laws originate chiefly from this source, and it is to this evil that a committee appointed by President McKinley, now sitting, should direct its principal attention and thereby evolve a plan to foster invention and protect investments within such reasonable limitations as may be in the interest of public welfare and in accord with the progress of medical science and pharmaceutical art. That a new process showing originality and improvement in chemical art is entitled to patent protection no one can deny, since through the attendant publicity improvement and invention are stimulated, and on expiration by limitation the process reverts to public use. In quite a different category must the so-called "product-patent" be placed, since new or improved process may be devised for an article which, however, can not be utilized because the law forbids anybody to make the same product, no matter under what name or by what process. Many of the synthetic chemicals come under this head, being further protected by trade-mark names.

The French laws governing these products are perhaps the best, practically making the National Academy of Medicine censor for new medicines. The American Pharmaceutical Association, at its 1899 meeting, took the advanced position relative to the recognition of articles in the U. S. Pharmacopeia: 1, that no letters nor words used as the generic or descriptive name of a medicine should be used as trade-mark, but that such protection should be confined to symbols and figures; and 2, to approve process-patents. The Convention for Revision of the U. S. Pharmacopeia will probably indicate the "Scope of the Pharmacopeia of 1900" on the following lines: To admit "any product of nature of known origin, and any synthetized product of definite composition in common use by the medical profession, the identity, purity and strength of which can be determined by physical and chemical tests. No compound nor mixture shall be introduced if its composition or mode of manufacture is kept secret, or if it is controlled by unlimited proprietary or patent rights."

With this summary of the situation at the present time, THE JOURNAL, after a careful analysis also of the position of all parties interested, submits this tentative policy through which it will endeavor to eventually exclude all medical advertising that may be objectionable

or not in accord with the high ideals of the AMERICAN MEDICAL ASSOCIATION—the medical profession of America—and scientific pharmacy.

SHALL ALCOHOL BE RECOGNIZED AS A FOOD?

The experiments of Prof. W. O. Atwater, of Wesleyan University, Conn., and the discussions growing out of them have opened up afresh the old questions: "What is Food?" and "Is Alcohol Food?" The experiments in question consisted in observations on the metabolism of a man who was confined in a respiration-calorimeter during successive periods. The calorimeter used by Professor Atwater is one of the most complete in existence, and the technique of his experiments is elaborate and as free from error as it is possible by present facilities to make such extensive analyses. The observations include not only a quantitative analysis of the various foods and beverages consumed by the man during the period of confinement, and the various excreta, but also a careful estimate of the energy represented by ingested material as well as the energy liberated from the body in the various excreta, in heat, and in mechanical energy.

Through the means of the respiration-calorimeter an experimenter is able to verify the law of the conservation of energy as applied to the animal organism. Professor Atwater has brought new and conclusive evidence to prove that every unit of energy which enters the body as potential energy of the food will leave the body in potential energy as excreta, in heat radiated from the body, or in mechanical work done by the muscular system. The material income of the body must balance the material out-go, and the energy-income of the body, in accordance with the law of conservation of energy, must balance the energy out-go, however many transformations it may undergo within the body.

Professor Atwater substituted for a portion of the non-nitrogenous foods a quantity of ethyl alcohol equivalent in energy to the food which it replaced—2½ oz. of absolute alcohol per day in six does. In harmony with what has been known for many years, he found that the alcohol is nearly all oxidized within the body. A necessary result of its oxidization is a liberation of its energy, which is added to the total energy of the body. In these respects alcohol is similar to foods because all foods are oxidized within the body, giving up their energy to it. His conclusions that the body held its own as well when alcohol was made a part of the diet as it did with a normal diet is discussed in detail and with evident fairness in another column of this issue, by Professors Woodbury and Egbert, of Philadelphia.

The question at issue is whether its oxidization in the body entitles alcohol to a position among the foods. If all substances which are oxidized in the body and give up their energy are to be classified as foods we shall be obliged to list with the latter many substances which are more or less noxious in their influence on the system. The fallacy of the reasoning which would place alcohol among the foods is very apparent when we put it in the form of a syllogism: All foods are oxidized in the body; alcohol is oxidized in the body; therefore, alcohol is a food. As logically might we say: All birds are bilaterally symmetrical; the earthworm is bilaterally symmetrical; therefore, the earthworm is a bird. Oxidization within the body is only one of several important properties of a food; as bilateral symmetry is only one of several important characters of a bird.

If we possessed a generally-accepted definition of a food, it could be very quickly decided whether or not alcohol conforms to the several conditions which foods must fulfil. There are almost as many definitions of food in our language as there are writers on nutrition. No definition yet proposed is generally acceptable. The difficulty which physiologists experience in formulating a definition of foods is similar to that which biologists have experienced in formulating a definition of life. The advance which physiologists, biologists, pathologists and neurologists have made in the study of the inner life of the cell—that ultimate structural unit, and life-unit—ought to give us in our attempt to define a food advantages incomparably greater than those which Liebig enjoyed half a century ago.

The alcohol-a-food fallacy emanated, along with other notable fallacies, from the chemist, Liebig. From his rather restricted point of view he propagated three doctrines which have been very difficult to dislodge. These were: 1, that the nitrogen of the urine is a measure of muscular work; 2, that meat extract—Liebig's Fleisch Extrakt—contains nourishment for the living tissues of the body; 3, that alcohol is oxidized in the body and must therefore be a food. Fick and Wislicenus proved the error of the first doctrine, Voit and others the untruth of the second, while numerous physiologists, notably Fick and Bunge, and many members of the medical profession have exposed the fallacy of the third. But like Banquo's ghost, "it will not down." Great commercial and social interests are involved in this particular fallacy, therefore the tenacity with which it clings to existence.

A definition of food must include a statement of its general effect on the inner life of the individual cell. In this regard alcohol stands far removed from all recognized foods. Advocates of the alcohol-a-food dogma try to evade the main issue by contending that "as alcohol is oxidized in the body it is to a certain extent a food" or that it possesses "a limited food-value." This method of reasoning is just as fallacious as it would be to contend that because an earthworm possesses one of the requisite characters of a bird it is therefore to a certain extent a bird. The claim that alcohol is a food, in any proper sense of the term, is not in our opinion sufficiently proved.

THE HALF-CROWN fund being collected by the *British Medical Journal*, for the South African contingency, is now over £207.

CEPHALIC INDEX AND HEIGHT, WEIGHT, STRENGTH AND MENTAL ABILITY.

A statement of Dr. John Beddoe, in regard to the dolichocephalic and brachycephalic types of races and the superiority of the former, forms the text of a recent research and article by D. A. Sargent.[1] In order to test the question as to which of these types predominates and what its physical and mental qualities are, he made a study of 1100 Harvard students recently examined. The numerical strength of these groups, according to their cephalic indices, is given as follows. Those who had indices of 75 and less were classed as dolichocephalic, and numbered 116, those between 75 and 77.77 as subdolichocephalic, this group numbering 284. Those who had indices between 77.78 and 80 numbered 331 and were classed as mesaticephalic, and between 80.01 and 83.33 as subbrachycephalic, there being 261 of these. Those with indices of 83.33 and over were considered brachycephalics, their number 108. These different groups were arranged according to their average height, and it was found that the mean dolichocephalic stature was 5 feet 9 inches, and that of the brachycephalic 5 feet 7½ inches, the other intermediate types coming between the two. As regards weight, the same was also true, the dolichocephalic showing the mean of 138.9 pounds, and the intermediate, subdolichocephalic and subbrachycephalic, showing 135.6 pounds. The average height and weight are usually considered as indications of physical strength in the normal man, but the American college test applied leaves nothing to be taken for granted, and consists in actual tests of weights lifted with legs straight and legs bent, the strength of grip, of expiratory power and of the weight in kilos multiplied by the number of times the person can raise his weight by dipping between the parallel bars and pulling his weight up to his chin on a horizontal one. All candidates for the athletic team at Harvard are required to show their ability or make a certain number of points according to these tests. Candidates for the university teams are required to make a total of 700 points, those for class teams 600, and so on. Grouping the racial types according to these tests, the mean strength of the dolichocephalic class was 575 points and of all other classes about 550. Over 5 per cent. of the dolichocephalic class surpassed the test of 800 points, while only 5 per cent. of the brachycephalic class surpassed 700 points. In looking up nationality it was found that the dolichocephals claimed 81 per cent. of their grandparents were Americans, while 57 per cent. only of the grandparents of the brachycephals were natives, other intermediate groups ranging between these two extremes. The occupation and residences were also studied. As regards the latter, 60 per cent. of the dolichocephalic and 56 per cent. of the brachycephalic classes were born and bred in cities of over 10,000 inhabitants. In answer to the question, "are your father and mother living?" 18 per cent. of the dolichocephalic type replied, " father dead," and 11 per cent., "mother dead." In answer to the same question, 11 per cent. of the brachycephalics gave the former answer and 11 per cent. the latter. In college standing the brachycephals stood a little ahead, but in athletics the dolicocephals had 23 per cent. to only 21 per cent. of the brachycephalic class in the college athletic teams. The ratio of blond and brunette in the two types was about the same, but the predominance of brunettes was striking in both. Dr. Sargent considers the facts very suggestive, and it may be admitted that in most respects the dolichocephalic type takes the lead in physical development. The superiority in studies in the brachycephalic type is, he says, perfectly consistent with Dr. Beddoe's conclusion that the long-headed type has a greater intellectual force. High standing in school is dependent more on patient industry than natural intelligence. Athletes frequently fail to take high rank because they give too much of their time while at college to other pursuits, but in later life their superior mental power brings them to the front. The paper does not give as full data as would be interesting in regard to those who are between the two extreme types. It would be of interest could we know just what proportion of the mesaticephals excelled in these different tests as compared with those here reported. One thing is prominent, that the American race does not appear to have degenerated in this country and that foreign blood, even in the third generation, seems to be inferior to the older American stock. A still more important criticism might be made, viz., that the Harvard student does not represent the average young man in this country, but is of rather a selected class, taken mainly from the well-to-do urban residents. It would be of decided interest could athletic directors of colleges in the several sections of the country make similar studies, and by comparison some valuable points might be developed. If the institution at West Point, N. Y., for example, or the naval school at Annapolis, Md., could be thus examined, it would have its special value for comparison with those of the extreme and middle West with those figuring in these Harvard statistics. This line of inquiry is certainly worthy of being followed up more generally than has been the case heretofore.

[1] Jour. of Boston Soc. of Med. Sci., February 20.

TUBERCLE BACILLI IN MARGARIN.

It has been satisfactorily shown that tubercle bacilli may occur in butter and other dairy products. Morgenroth[1] found, by careful methods of experimental investigation, that in a large percentage (8 in 20) of samples of margarin living tubercle bacilli occurred. The most likely source of tubercle bacilli in artificial butter would seem to be the milk used in its manufacture; this milk is skimmed milk, largely the remains of centrifugalized whole milk and consequently rich in bacteria. A second source might be diseased lymph-glands in the fat used in making margarin. This demonstration shows the necessity of pasteurization of the materials used in manufacturing oleomargarin and similar products. A series of

[1] Hyg. Rundschau, 1899.

painstaking investigations along these lines of the food products offered the American public would undoubtedly lead to a more lively interest in their freedom from disease-producing germs than now seems to be the case.

SAN FRANCISCO'S PLAGUE.

On account of the charges and criticisms of a certain portion of the local press, even repeated in the pulpit, the president of the Board of Health of San Francisco has sent out an official statement giving the facts as to the recent occurrence of bubonic plague in that city. The tests made by competent authorities leave no doubt as to the existence of the disease in the one case that was first examined, and since then three other bodies which had been concealed till it was no longer possible to hide them have been found, as noted in our News columns this week. These gave the same bacillus and the post-mortem findings indicating plague. If, as this would indicate, the bubonic plague has found a footing there, and is being concealed by the slippery orientals of that city, the condition is serious enough. It is satisfactory, however, to know that the local health authorities are alive to the danger and will do their duty in spite of irresponsible newspapers, and they deserve praise for their straightforward and courageous conduct, so far, in this matter.

DISPOSITION OF OUR DEFECTIVES.

Health resort states, such as Colorado and California, are beginning to complain, and with some cause, that they are made the receptacles of the physical outcasts of the country, for such they may be called. It is the custom, altogether too general, to shift public burdens without regard to justice, and the sending of consumptives to California and Colorado to become public charges is a practice that ought to be stopped. The benefits to the individual are too dubious and slight to even give it the color of justification. It has been the practice of many local charity officials to shift their insane to other communities. Some years ago the superintendent of one of our insane asylums in the Middle West published the records of a patient under his care, who had been sent by the authorities from one to another state so that he had been a public charge in not less than twenty different places and several times more than once in one asylum. We naturally object to Europe dumping her paupers and criminals on our shores, but we are to a certain extent guilty of a similar thing ourselves. A recent case where a Massachusetts court, in lieu of sentence for forgery, condemned the man to absent himself from the state for two years, is in point and is no more than shifting a criminal on to another community, in itself a judicial crime. What is done with criminals is done many times with insane and the hopelessly diseased paupers, and a little agitation on this matter would be healthy, as a stimulant to better public morals.

GREAT BRITAIN'S DRINK BILL.

The drink bill of Great Britain is evidently a matter of enough moment to cause serious national alarm. According to *The Lancet* of March 10, the cost of alcoholic drinks in 1899 in the United Kingdom was £162,163,474 or £6,169,455—about $30,000,000—more than in 1898, and the estimated expenditure for alcohol per family of five persons is about £20, or $100, certainly a large figure. When it is considered that this outlay for the most part represents only the gratification of an appetite, often by those who can least afford it, and that it can only very exceptionally meet any want of the system, the unprofitableness of the expenditure is sufficiently manifest. One hundred dollars a year for drink would be considered a large amount in this country, where the average income of a family is probably considerably higher than in Great Britain, at least among the laboring classes. How large a burden it is on this class in Great Britain can only be imagined, but it is evidently great. From a purely economic point of view, taking into account the disqualifications for work due to even moderate excesses, as well as the absolute lack of return for the expenditure, it would appear that, excepting in war, there could hardly be a greater waste of national wealth than is insured by this drink bill. In a purely medical—not economic—point of view physicians, with the exception of Dr. Archdall Reed and his co-thinkers, can see in it other still more effective inhibitors of national prosperity.

THE JOURNAL AND ITS ADVERTISING POLICY.

On February 26, last, the following letter was handed to the advertising manager by the editor of THE JOURNAL, and a copy sent to all advertisers. It explains itself, and also the leading editorial in this issue.

Dear Sir:—At its meeting held Feb. 16, 1900, the Board of Trustees of the AMERICAN MEDICAL ASSOCIATION adopted a resolution to the effect that the rule adopted by the AMERICAN MEDICAL ASSOCIATION at Baltimore in 1895, in regard to printing the formulæ of proprietary medicines advertised in THE JOURNAL, shall be hereafter strictly enforced. This makes it necessary that each insertion of an advertisement of a proprietary medicine must be accompanied with a statement showing the active ingredients it contains, and the amount of each ingredient to a given dose.

The Board also adopted a resolution to the effect that no proprietary medicine advertised directly to the laity shall be admitted to the advertising pages of THE JOURNAL.

You will please see that these resolutions are carried out consistently with existing contracts.

As a result of this action contracts amounting to nearly $2000 annually have already been refused or canceled, and others will be during the next few weeks. We expect to say more on this subject in future issues of THE JOURNAL.

INSANITY AND WARS.

It is a common opinion that the periods of great social or political stress and commotion are productive of insanity. The war in South Africa, affecting as it does so many British families, has been expected to have already established a record in this regard, but so far as can be learned no cases of insanity attributable to this cause have yet been seen. The superintendent of a large British asylum is said to have explained this by what he calls "the selfish and unaltruistic nature of mankind." This would almost seem as capable of an interpretation that he regretted the lack of boom to his special business,

though certainly nothing could have been farther from his mind. It is probable that Great Britain has not as yet all the effects of this kind from the Transvaal War. The immediate results are often slight, but the remoter effects begin to be apparent months and years later. The excitement at the time of national disturbance is not so especially favorable to the immediate production of mental disorders. These will come later when all the results are what we may call physically and mentally better appreciated. The real effects of bereavement are not often directly after the loss. The excitement and sympathies of the friends and all the other numerous matters that arise at that time divert the mind, and it is only when quiet comes that the distressing consequences begin to appear. The war referred to has only lasted five months and is as yet hardly to be counted a great war, but whatever such effects there may be they will probably be some time in manifesting themselves.

CIRRHOSIS OF LIVER WITH FORMATION OF MULTIPLE ADENOMAS.

The occurrence of a nodular adenomatous hyperplasia in the liver in connection with ordinary cirrhosis has given rise to considerable discussion as to the origin of the adenomas and their relation to the cirrhotic process. It is quite generally agreed that the cirrhosis is the older of the two conditions because, while the cirrhotic changes appear to be chronic and of long standing, the adenomatous proliferations seem to be younger and to result from a more rapid process. Numerous investigators have shown that the adenomatous nodules are undoubtedly primary in the liver. Recently Schmieden reviewed this subject and added the results of the investigation of a new case.[1] He concludes that the primary change in the liver is the cirrhosis; this is followed by a compensatory or adaptive hypertrophy of the liver cells, that eventually results in adenomatous growth. The early stages of the process before distinct nodules have formed correspond closely with hypertrophic and regenerative changes on part of the liver cells in general, as seen in experimental regeneration, and in regeneration after acute yellow atrophy. It is of great interest to note that proliferations of this kind in cirrhosis of the liver may terminate in carcinomatous growth—a course of events that would speak against the parasitic origin of this form of cancer. In this case the primary cause of the proliferation would seem to be the previous loss of parenchyma.

WELL PAID VOLUNTEER SURGEONS.

The British are not neglecting the medical care of their soldiers in the present war. According to the *Practitioner*, there are, besides the regular force and the local additions to the medical corps, not less than seven "consulting surgeons" in the field, each drawing pay of $25,000 a year. While Sir William MacCormac and Frederick Treves, and perhaps one or two others of the seven, are of world-wide reputation, we have the authority of the *Practitioner* that some of these appointees "had blushed unseen within the walls of their hospitals before this greatness was thrust upon them." In one case it relates, the appointee asked to be allowed to take out a junior surgeon as an assistant, which request was refused as it was impossible to officially recognize such an anomaly as an assistant, "so the fortunate junior was appointed a consulting surgeon on the same footing as the others with a salary of £5000 a year." We usually consider everything done better abroad than at home, and there is therefore a little comfort, such as it is, in seeing such criticism of British officialdom, not that we regret to see such plums fall into deserving mouths, but because it makes us feel that after all our neighbors are not so very much better than ourselves. One of the most eminent and best-known of American surgeons served in practically the same capacity during our Spanish War, with only the pay of his temporary rank of colonel; if he had been paid $25,000 it would probably have been made the occasion for a howl in the yellow journals whose editorial capital consisted of the whining private letters of the homesick volunteers and the office-inspired indiscriminate criticisms of their correspondents. We do not wish to disparage by comparison the patriotism of the higher paid British consultants. We are glad to see them well paid, but merely note the fact that even in the admirable medical management of the Transvaal War there are yet some things that do not escape home criticisms.

DEMONSTRATION OF TYPHOID BACILLI IN DRINKING WATER, CAUSING AN EPIDEMIC OF TYPHOID FEVER.

Generisch[1] describes the bacteriologic investigation of suspicious water in a local epidemic of typhoid fever, in a Hungarian town by the name of Pécs. The facts are briefly these: After a heavy rain storm, in December, 1898, the water from two reservoirs became turbid and stinking; an epidemic of typhoid fever broke out suddenly in the parts that received their water from these sources; 209 cases developed, with 28 deaths; the suspected reservoirs were demolished and three weeks later the epidemic subsided. Generisch was sent from Budapest to examine the water bacteriologically. He made a large number of plate cultures on which grew something like 157 colonies suspiciously like those of bacillus typhosus; of these 103 resembled typhoid bacilli in gelatin stabs, and of the 103 stained preparations and hanging drops corresponded to typhoid bacilli in 61 instances; inoculations on potato, of the 61 growths, gave cultures like typhoid cultures in 31 cases, and these 31 cultures seemed typical in glucose-agar and milk, and not one gave the indol reaction, 9 of the 31 died out; of the remaining 22, 11 agglutinated typically with typhoid serum diluted to 1:50, so that by this laborious method of exclusion 11 cultures of typhoid bacilli were obtained. Further experiments with animals were made, the main result being that many of the 11 cultures appeared to be less virulent than cultures obtained from patients dead from typhoid fever, the blood-serum of rabbits and guinea-pigs inoculated with bouillon cultures acquiring less agglutinating power than after similar inoculations with cultures from other sources. In 1890-91 two epidemics of typhoid fever appeared suddenly in the same town, but confined themselves to parts that received their water from other sources than those affected by the present epidemic. The number of cases was 1128, the mor-

[1] Virchow's Archiv, 1900, clix, 290.

[1] Centralbl. f. Bakt., 1900, xxvii, 241.

tality 7.5 per cent. Typhoid bacilli were demonstrated in the suspected water at that time, by assistants in Professor Fodor's institute.[2] The conditions surrounding the epidemics of 1890-91 and 1898-99 are similar. The pipes conveying water from springs to the reservoirs were faulty in both cases, superficially located and leaky, hence contaminated surface water reached the reservoirs, the water from which precipitated the epidemics.

A THALLOPHYTIC BLOOD PARASITE ASSOCIATED WITH REMITTENT AND OTHER FEVERS.

E. W. von Tunzelmann describes a protean febrile disease said to be prevalent in China, which many medical men there regard as an unnamed fever peculiar to the East.[1] The febrile attacks range from slight to those of the utmost severity, lasting many weeks, but the clinical picture does not seem to be clearly defined, and nothing is said concerning any anatomic lesions. Human beings are thought to acquire the disease from food animals. The disease is apparently more or less pandemic in China, and seems to break out now and then in more acute, rapidly spreading endemics. The parasite described by von Tunzelmann as associated with this disease is an interesting one. It is a parasite of the blood, but totally different from the organisms of malaria. The red corpuscles are described as studded with circles, crescents, and rods provided with a hopping motion; hyphæ laden with spores are also present in the blood and are revealed by prolonged staining with carbolfuchsin; the progress occasionally induces thrombosis. Colonies are obtained by placing aside dried films of the blood, under aseptic precautions; in such are large plasmodial masses produced by fusion of swarm-spores. Three kinds of spores are recognized in the blood: zoogonidia—actively motile bodies of varied shapes; simple tubular bodies; and zygospores, reddish-brown, uniform and circular bodies with a clear central space. The rather complicated structure of the organism is described and illustrated in detail; germ-organs and reproduction by a sexual and by an asexual process are described. The spores are extremely resistant to noxious influences; not only do they withstand boiling for half an hour for three successive days, but an old growth is best rejuvenated by boiling for a few seconds; the spores develop in various antiseptic solutions, except bichlorid of mercury and methylene blue. The organisms grow readily in various media. The parasite occurs within a wide range; von Tunzelmann has searched in vain for nearly two years for a single specimen of blood, from any warm-blooded animal, which is free from it. Gravy from a hot roast joint and boiled milk have been found swarming with it. Animal inoculations do not seem to have been made. Naturally we must await further publications in which the disease and the thallophyte referred to will be described in greater detail before these remarkable observations can be fully accepted.

Twenty-four surgeons and 70 hospital-corps men sailed on the *Meade*, on March 20. Twenty additional surgeons, it is announced, will sail shortly from New York City. Some go to relieve others in the Philippine Islands.

[2] Deutsche Med. Woch., 1892, No. 33.
[1] Journal of Path. and Bact., 1909, vi, 306.

Medical News.

A pathologic laboratory is to be established on the Congo, at Leopoldsville, the terminus of the Congo Railway. A bequest of 50,000 francs has been left for this purpose.

A bill has been introduced in the Italian parliament favoring Italian physicians at the expense of all others, by limiting the practice of foreign physicians to foreign patients.

The German Emperor has offered a prize of nearly $20,000 for an automobile that can be used in war. Competition for this may bring the "medical automobile" nearer realization.

The candidates for the chair of medicine at Edinburgh include: Drs. John Wyllie, Byrom Bramwell, Alexander James and G. A. Gibson, all fellows of the Royal College of Physicians at Edinburgh, besides Dr. Wm. Osler of Johns Hopkins, as previously mentioned in The Journal.

None are now received at either of the two convalescent homes to which patients are sent from the Paris hospitals, unless with a medical certificate stating that there are no indications of tuberculosis of the respiratory passages. The creation of a national institute for experimental and practical research in regard to tuberculosis is being urged in France.

According to a communication in the *British Medical Journal*, March 17, with tables showing Ladysmith's rations during the latter part of the recent siege, the food value of the rations only amounted to half what older authorities had considered normal diet, and only about 40 per cent. of the modern standard (Atwater's). Compared with prison and poorhouse diets the rations were of much less food value.

Two professors in Europe have recently been requested to resign their chairs by the political authorities: Professor Shenk, of Vienna, as already mentioned in The Journal, and Professor Arons, of Berlin. The resignation of the former was demanded at the request of the local medical associations, while Professor Arons was involved in a merely political conflict of opinion with the authorities.

The name of the long-anticipated medical insurance society in Belgium is the "Co-operative Médicale." It is hoped this will turn into the pockets of the profession the stream of money which has been pouring into the coffers of the lay officers of the sickness insurance societies. The capital has been fixed at 1,200,000 francs, and the 12,000 shares, at 100 francs each, have been taken by a thousand physicians throughout the country. The final meeting for organization and election of officers was called for March 12, at Liège. Dr. L. Merveille, editor of the *Gaz. Med. Belge*, has been a leading spirit in the matter.

Scotland's Consumption Sanatoria.—According to *The Lancet* of March 17, The Orphan Homes of Scotland and the Consumption Sanatoria of Scotland form, at the present time, a group of 58 buildings on an extensive site near the Bridge of Weir, within easy access of Glasgow. About two years ago the founder of the former erected a building for the poorer classes of phthisical patients, some distance from the orphanages, but for females only. It has thirty beds and is so full that more than forty suitable cases are waiting for admission. Each patient consumes about three pounds of butcher's meat (weight before cooking) daily, with fish,

ham, milk, eggs, fruit, etc., in addition. The cost per person is about £2 a week. A second similar sanatorium is to be opened to accommodate forty, also for females. Admission is free and none but necessitous patients are eligible. With an average residence of four months, it will then be possible to treat about 240 a year.

SUNSTROKES IN MARCH.—The extreme heat prevailing in portions of South America this month has been mentioned by cable. The *Semana Médica,* just arrived, states that in Buenos Ayres there were 93 deaths from sunstroke on March 3; 134 the next day, and 27 on the 5th—a total of 254 deaths out of 427 succumbing to the heat and the effect of the "hot north wind," in three days. The temperature was not as high as in some other places; 104 degrees was the extreme, while at Rosario the mercury rose nearly to 110, but there were only a very few fatalities. At Buenos Ayres the deaths seemed to be due to suffocation, and the syndrome resembled more that from over-exertion in sport. Most of the subjects were workmen employed out of doors, but in a number of cases the patients had been attacked while at home, quiet, not making the slightest effort. The editorial suggests that possibly the excessive perspiration may have induced autointoxication by reducing the quantity of urine, as the poisons ordinarily excreted in the urine are not thoroughly eliminated through the skin, as fifty times more sweat than urine is required to eliminate the same amount of poisons. A number of common heart and nervous troubles were also aroused to fatal exacerbations by the heat.

PROGRESS OF THE PLAGUE.—According to the *British Medical Journal* of March 17, the total number of deaths in Bombay City, during the week ending February 20, was 2701, or 64 more than the preceding week and 1380 more than the corresponding periods in the preceding five years. The plague deaths of the week numbered 641, or 71 more than the previous week. The present plague epidemic has been in evidence sixteen weeks, which is three weeks longer than the previous epidemics. Of the 2793 deaths in Bombay during the sixteen weeks 5018 were due to plague. The disease is also increasing in Nagpur. There were 10 deaths there February 16. Calcutta also shows an increase, the deaths increasing from 24 on February 16, to 40 on February 21. Reports from Hongkong are that the efforts of the sanitary authorities to destroy the rats in the city of Victoria have been more or less unsuccessful, only 36 of those animals being brought in during the month, while 157 rat traps were issued. In Japan, on account of a few cases of plague continuing to occur in several of the cities, a small sum has been offered to persons bringing in dead rats. Three fresh cases of plague were reported in Sidney, Australia, March 12, 15 persons having been attacked since the outbreak, with 6 deaths. In Mauritius, 9 new cases with 7 deaths were reported for the week ending March 8.

PENNSYLVANIA.

DR. WILLIAM B. ULLRICH, Chester, gave a reception and banquet to the members of the Delaware County Medical Society at his home, March 16, in commemoration of his golden anniversary in the practice of medicine.

Philadelphia.

THE THIRD session of the auction sale of autograph books, for the benefit of the Germantown Hospital, was held on March 24.

THE FOLLOWING physicians have been appointed medical inspectors of the public schools: H. W. Hassell, Miller of Colwyn, C. C. Moore, Gerald D. O'Farrel and Samuel Steiner.

DR. JOHN V. SHOEMAKER recently gave a dinner in honor of Dr. L. Blanc of Aix-les-Baines. Others present were: Drs. Ernest Laplace, Charles W. Burr, Frank Woodbury, W. C. Hollopeter, E. B. Gleason, George W. Pfromm, Joseph K. Weaver and H. Halberstadt.

DR. JOHN MADISON TAYLOR recently delivered a lecture before the Philadelphia Nurse Supply and Medical Dispensary, on "A Short Course in Nursing."

THE THIRD lecture of the series now being given for the benefit of the Cuban Orphan Society was delivered by Dr. Edward Martin, the evening of the 21st, on "Immediate Treatment of Some Emergencies."

THE SUM of $100 has been given the Jewish Hospital, and $50 to the Jewish Foster Home, by Miss Emily Phillips, who makes this contribution annually.

AN ILLUSTRATED lecture on "Paris and The Exposition" was given by Mr. Charles H. Adams, the 26th, for the benefit of the Pay Hospital for Contagious Diseases.

THE SEVENTEENTH annual report of the Philadelphia Polyclinic shows a gain of $6030.79 over the former period. Over 24,000 patients were treated, the majority charity.

STUDENTS OF the different classes of the University have on foot a movement looking toward the establishement of a dispensary for their use in connection with the Southwestern Dispensary of this city.

A SEVERE explosion and fire in a building adjacent to the Jefferson Medical College Hospital occurred March 22. It killed one person, wounded twelve others and seriously menaced the hospital building, though but one patient was injured.

THE SUM of $3000 has been given the following named institutions: University of Pennsylvania Hospital, Jefferson Hospital, Southeastern Dispensary for Women and Children, and the Women's Directory, from the Charity Ball of 1900.

MARYLAND.

DR. J. W. HERING, comptroller of the State of Maryland, delivered a lecture to the students of the Western Maryland College, Westminster, Md., on the 17th, on the government of the state, executive, judicial and legislative. Dr. H. has been connected with the College since its inception in 1866, first as secretary and now as president of its board of trustees.

Baltimore.

DRS. JOHN RUHRÄH and Melvin S. Rosenthal, lately connected with the Quarantine Station here, sailed for Europe March 21, on the *Hanover.*

DR. WILLIAM OSLER has been confined to his bed for some days with la grippe, which, however, so far presents no serious symptoms.

THE NAME of the Second Hospital for the Insane at Sykesville has been changed by act of the legislature, to Springfield State Hospital.

THE COMMITTEES of the two branches of the legislature have voted down the request of the three medical schools, noted in THE JOURNAL of March 17, p. 699, for an appropriation.

THE FOLLOWING physicians have been appointed coroners of the city: Jos. Saunders, Otto M. Reinhardt, Wm. M. Requardt, Wm. T. Riley, John C. Witshire, C. Frank Jones, John H. Scalley and Silas Baldwin.

DR. LEWELLYS F. BARKER, of the Johns Hopkins Hospital, delivered an illustrated lecture on the Philippines, March 26, for the benefit of the Clifton Mothers' Mission, Northeast Baltimore. A musical program was rendered, in which Dr. B. Merrill Hopkins, baritone; Dr. Philip Ogden, accompanist, and others, took part.

THE MORTALITY for the week ended March 17 embraced the following diseases: pneumonia, 42; bronchopneumonia, 10; consumption, 29; influenza, 8; heart disease, 16; Bright's disease, 15. The death-rate was 22.49 per 1000, showing the usual proportion of two of the negro population to one of the white.

SHIPPING OF THE DEAD.

The body of a colored man, en route from Philadelphia to St. Mary's County, Md., was stopped by the authorities of the Baltimore & Ohio R. R., who refused to allow it to be removed from the station without a burial certificate from Health Commissioner Bosley. The casket was marked "contagious." It is learned that an agreement has been entered into by the Penn-

sylvania and Maryland health authorities, making a state permit from Pennsylvania sufficient for carrying a body through Baltimore for burial in any portion of Maryland, and the undertakers and the railroads have been so notified.

RABIES.

A DEATH from rabies at the City Hospital's Pasteur department, has been reported—that of a boy from Roanoke, Va., aged 9, who was bitten on the head and left shoulder, February 1, by a buldog. He was brought to Baltimore three days later. February 5, after receiving only one treatment, he was taken home by his father, because he had been vaccinated and it was taking severely. The removal was against the advice of Dr. N. G. Keirle, chief of the laboratory. Brought back to the hospital February 25, the disease developed March 14, with vomiting and pains in the head, and the boy died in great agony on the morning of the 17th. This is the first death in more than 100 cases treated at this institution, since its establishment, April 14, 1897. The rabbits inoculated from the dog developed rabies February 20, and the lad's father and physician were at once notified, but too late to allow the preventive treatment, death occurring three days before the completion of treatment and eighteen before the establishment of immunity, which means the production of sufficient antitoxin to antidote the toxin.

OHIO.

DR. W. G. COOPER, first assistant physician of the Toledo State Hospital, has resigned to resume general practice.

THE HEALTH report of the Columbus city schools, for the month of February, shows that 3877 cases of sickness were reported, of which 2000 were sore throat, headache and unclassified diseases. The largest number of cases of one disease was that for measles, there being 248.

ACCORDING to the annual report of the Youngstown Health Department, the total mortality was 848. There were 352 cases of typhoid fever reported and 54 deaths. The health officer urges the rapid completion of plans for a better water-supply, and recommends the passage of a suitable ordinance regulating the disposal of garbage.

Cincinnati.

DR. H. J. WHITACRE left the latter part of this month for a four-months' trip abroad.

DR. CHARLES F. BEESON, resident surgeon to the Cincinnati Hospital, who went west some months ago for his health, has again resumed his duties.

DR. E. O. MCKEE has sailed for Naples via Azore Islands and Gibraltar. He will visit the Paris Exposition.

DR. WILLIAM SIMON, professor of chemistry in Johns Hopkins University, gave a lecture with practical tests, on "Liquid Air," March 22.

DR. W. E. LEWIS, professor of anatomy in the Cincinnati College of Medicine and Surgery, will begin his annual course of lectures on anatomy, April 4. These lectures are designed to be of a practical and semipopular character, to meet the needs of those of both sexes interested in this branch from the standpoint of medicine, dentistry, midwifery, art, physical culture and calisthenics.

THE PRESENT legislature will be asked for an appropriation of $25,000 for the erection of additional buildings for the branch hospital established for the treatment of consumptives, as the hospital is becoming overcrowded. If the bill is passed the cottage plan will be adopted.

DR. ROBERT T. MORRIS, of New York City, delivered an address on appendicitis before the Cleveland Medical Society, March 23.

THE TRUSTEES of Lakeside Hospital have received $5000 from Mr. and Mrs. Harvey H. Brown for the endowment of a bed in the hospital to be designated as the "Brown bed."

ILLINOIS.

THE TRAINING school for nurses, in connection with St. Anthony's Hospital, Rock Island, has been opened.

DR. E. A. FOLEY, of the Northern Illinois Hospital for the Insane, Elgin, has been promoted to the vacancy caused by the resignation of Dr. Lucius Foote, second assistant physician.

THE SUM of $50,000 has been presented to the Evanston Hospital by Mrs. Herman D. Cable. Half of the amount is to be used for the erection of the Herman D. Cable memorial building. The other $25,000 is to be devoted to the maintenance of a children's ward as a memorial to the donor's daughter.

Chicago.

THE CHICAGO Woman's Club has inaugurated a movement to establish a hospital which will include in its course of instruction the training of women for the work of the Red Cross Society.

THE WILL of Dr. E. L. Holmes was admitted to probate March 26. The estate is valued at $55,000, of which $50,000 is personal property. It was directed by the testator that all of the estate should be converted into cash as soon as possible, and divided in equal shares among his five children.

THE REPORT of the superintendent of compulsory education on medical inspectors of schools from February 19 to March 16, shows that 21,404 examinations were made during this period. The reports of the individual medical inspectors show that the number of cases of mumps has largely increased, while there is a decrease of scarlet fever and diphtheria.

EXCLUSION OF PUPILS.

The authority of the Board of Education to exclude pupils from the schools under the medical inspection act was upheld in the superior court, March 26. Some weeks ago a child returned to school after an absence of several days, and presented a certificate from a physician stating that the child was free from contagious or infectious disease. The certificate was not accepted by the Board, as the examination had not been made by an official examiner, and admission to the school was refused. The parent then applied for a writ of mandamus to compel admission to the school without an official examination, which was denied by the court. An appeal to a higher court has been taken.

MORTALITY STATISTICS.

During the past week there were 640 deaths, which is the greatest number ever recorded during any week in the history of the city, according to the Bulletin of the Health Department. This increased mortality is attributed to influenza, which has been prevalent since last fall. Although only 4 deaths are recorded from this affection alone, it is reported as a fatal complication in the majority of the 159 deaths from pneumonia, the 72 from consumption, the 54 from heart disease, and the 154 of persons over 60 years of age. The Department reports a great laxity in the preventive care of la grippe, and states that the infectious character of the disease does not seem to be recognized. It also calls attention to the prevalence of smallpox and urges the vaccination of those who are unprotected.

INDIANA.

DR. ERIC CRULL has been appointed a member of the Fort Wayne pension examining board, vice Dr. Herman A. Duemling, resigned.

IT IS reported that the Board of State Charities is preparing a recommendation to the state legislature relative to the establishment of an epileptic colony.

THE ANNUAL report of the Deaconess Hospital, Evansville, shows that 253 patients were treated during the past year. The receipts were $9011 and the disbursements $8956.

A GRADUATE from a school of hypnotism has applied to the State Board of Medical Registration for license to practice the art in "curing" all diseases.

MINNESOTA.

ONE HUNDRED patients from the State Hospital for the Insane, at St. Peter, were transferred to the new asylum at Anoka, March 14.

THE PROPOSITION to vote $10,000 for a public hospital was adopted by a large majority in the municipal election at Owatonna, March 13.

DURING THE past week the sum of $2500 has been contributed to the Winona Hospital, for the purpose of liquidating a debt of $4500.

WORK ON the new building of the Asbury Hospital, in Min-

neapolis, will be commenced at an early date. Over $1500 is in the hands of the treasurer of the fund.

THE BECKER County Infirmary at Detroit was destroyed by fire March 13. All of the patients, fifteen in number, were rescued. The building and contents were valued at $7000; there was $5000 insurance.

DRS. C. E. RIGGS, St. Paul, W. F. Milligan, Wabasha, and C. O. Cooley, Madelia, have been appointed members of the State Board of Inspectors of Insane Hospitals. Drs Louis A. Fritsche, New Ulm, and C. J. Rignell, Minneapolis, have been appointed to the State Medical Board.

VESSEL owners on the lakes are being petitioned to subscribe to the fund for enlarging St. Luke's Hospital in Duluth. There is no marine hospital in that city, and all sailors are cared for at St. Luke's, which is inadequate for their care. The citizens of Duluth have raised $30,000 but lack $15,000, which the marine men are asked to make up.

NEW YORK.

A BILL was passed by the Assembly on the 22d, chartering the New York State Medical Association.

THE SLATER bill to permit members of the Women's Prison Association to visit public institutions for women has been defeated by a vote of 59 to 45 in the Assembly.

THE INTERIOR of the consumption ward of the Erie County Hospital, Buffalo, was burned March 21. There were sixty patients in the ward when the fire occurred, all of whom were removed without injury.

IT IS reported that among the bills passed by the legislature is one by Assemblyman Henry, to improve the public health of New York City by a systematic endeavor, under the supervision of the Department of Parks, to preserve the trees, and plant and cultivate trees in the city streets. A similar bill was presented at the last session, but failed.

DRUG CLERK'S BILL.

It is understood that the reason the drug clerks' bill for shorter hours failed to be advanced was that political opposition was aroused by the clause providing for the enforcement of the act by the State Factory Inspector instead of by the City Board of Health. Governor Roosevelt is heartily in favor of the bill, and says he would be willing to allow the inspection to be done by the City Board of Health if by so doing the passage of the bill could be insured, but he would prefer the original provision.

PURE BEER BILL.

The pure beer bill, previously mentioned in THE JOURNAL, seems to have been favorably received so far in the legislature, although the brewers have opposed it. Assemblyman Stevens, who introduced the bill, says he can not understand why the brewers should be injured when all that was asked of them in this bill was that they be honest. The bill provides that all beer containing any material other than pure barley, malt, pure hops, pure extract of hops, pure yeast, pure water, or pure cereal products, made only of wheat or corn, shall be branded as "inferior."

TENEMENT-HOUSE LEGISLATION.

Bills have been introduced into the Senate by Mr. Stranahan, and into the Assembly by Mr. Fallows, which are strongly backed by the organized charities. Their object is to secure some much-needed reforms in our tenement houses. The necessity for such legislative intervention was recently pointed out and strongly emphasized by the interesting and instructive exhibit of the Tenement-House Committee of the Charity Organization Society. These bills authorize the governor to appoint a tenement-house commission to make a careful investigation into the construction of tenements, rentals, the effect of these houses on the health and morals of their occupants, and kindred problems. The present tenement-house laws are greatly in need of revision.

New York City.

DURING THE month of February the United Hebrew Charities received 4209 applications for relief, representing about 14,000 persons. In 942 cases relief was refused for cause. In addition to the above figures, monthly allowances were given to 380 cases. Work was found through the employment bureau, for 233, and the average attendance at the industrial school was 193 girls.

A SMALLPOX CASE.

A student of Columbia University (School of Law) is ill with smallpox, at first thought to be measles. The announcement of his condition was a prelude to a wholesale vaccination, which the health authorities at once undertook. The Dean gave notice that all who would not submit to vaccination at that time would be prohibited from coming on the grounds of the University. Most of the faculty and many of the students of the other departments have already been vaccinated. Three or four students who had been to visit the patient before the nature of his malady was known have been excluded from the University until able to show a clean bill of health from the inspectors of the Health Department.

STATISTICS OF RABIES TREATMENT.

The record of the New York Pasteur Institute, founded in December, 1889, shows that during its first decade 1367 cases have been treated, with 19 deaths, 3 of the latter being before completion of treatment, and 7 within fifteen days after its completion. According to the rule established by Pasteur, these 10 are therefore to be excluded, making the mortality 9. Of the patients, 154 were bitten on the head or face, 746 on the hands and 467 on other parts of the body. In 1287 the wounds were inflicted by dogs, in 70 by cats, in 5 by man, in 2 by horses, in 2 by cows and in 1 by a polecat. In 447 instances the animals inflicting the wounds were proved rabid by inoculation into rabbits or guinea-pigs. In 268 cases the animals were declared rabid by clinical or veterinary examination. In the remaining 652 the animal had disappeared or had been killed, in each instance action leading to the suspicion of rabies.

DISTRICT OF COLUMBIA.

HEALTH OF THE DISTRICT.

The report of the health officer for the past week gives the total number of deaths as 130, of which 96 were white and 34 colored persons. At the close of the week there were 30 cases of diphtheria and 65 cases of scarlet fever under treatment.

Washington.

THE TONER lectures at Georgetown Medical School began on the 22nd inst., by a lecture by Surgeon-General George M. Sternberg, on the "History and Etiology of the Bubonic Plague."

DR. JOSEPH M. HELLER, formerly resident physician at Garfield Hospital, now acting assistant-surgeon, U. S. A. in the Philippines, has been highly praised by his superior officer for valuable and faithful services rendered the sick and injured soldiers in his charge.

LOUISIANA.

THE MOBILE Bay Quarantine Board has declared quarantine from April 1 to December 1 against Cuba, Porto Rico and Latin America. Vessels from suspected ports will be detained three days; those from ports known to be infected, fifteen days.

New Orleans.

DRS. ALLEN JUMEL and Will H. Woods have been appointed fruit inspectors of the Louisiana State Board of Health, the former going to Bocas Del Toro, the latter to Port Limon.

DAIRY REGULATION.

War is being waged here against filthy dairies. A large proportion of the dairies have been found to be unhygienic in their management, the water-supply to the cows coming from wells situated near the manure piles and the family water-closets—uncemented. Two dairymen are being prosecuted by the attorney for the city board of health.

MICHIGAN.

THE STATE Board of Medical Examiners met in Detroit on March 20, for the examination of twenty-five candidates desiring to practice in the state.

THE CONTRACT has been awarded for building two cottages for the Upper Peninsula Hospital for the Insane, Newberry. The buildings will cost about $38,000.

CONNECTICUT.

AT A recent meeting of the Bridgeport Medical Association

a resolution was adopted excluding newspaper reporters from its meetings.

THE MEDICAL Examining Committee held a meeting in New Haven, March 13. Ten candidates desiring to practice in the state were examined.

COLORADO.

Denver.

DR. I. B. PERKINS and several other prominent workers identified with the Baptist churches in Denver are endeavoring to transform the Baptist college building, which has never been completed, into a well-equipped sanatorium for consumptives. The grounds embrace nearly thirty acres, in an admirable location.

FUMIGATION OF PULLMAN CARS.

Health Commissioner Carlin intends to have the board of aldermen adopt a sanitary measure of wide-reaching import, one requiring the Pullman sleepers, compartment, and other dormitory cars which enter the city to be fumigated daily with formaldehyde before departure. Consumptives come to Denver daily in sleeping cars which are occupied the next day by healthy persons on outgoing trains. Although the linen is supposed to be changed daily, a careless porter may neglect this, and infection may result. The blankets, mattresses and curtains are never changed. The Commissioner hopes that the Pullman Company will not object to the movement, which is intended as a measure of protection to the health of its patrons.

CALIFORNIA.

DR. C. W. EVANS, Modesto, has been re-elected physician of Stanislaus County.

A CHINAMAN suffering from leprosy has been discovered and isolated by the health officers of Los Angeles.

THE FUNSTON Sanatorium Association proposes to build a sanatorium at North Ontario, for sick and disabled soldiers and sailors of the late war.

AT A meeting of the Oakland Board of Education, March 19, a resolution was introduced debarring consumptive teachers and pupils from the public schools. Action was deferred until the next meeting of the Board.

IN HIS annual report to the Board of Managers of Agnews State Hospital for the Insane, the superintendent recommended the erection of three additional cottages for the better accommodation of the less violent patients.

CONSUMPTIVES' HOME.

Frederick Sellick, a Santa Monica organist and composer, has formulated a plan for the establishment of a home for consumptive organists, in Southern California. Of the $14,000 needed, over $7000 has been provided, through the personal efforts of Mr. Sellick, who has given the proceeds of numerous recitals for the benefit of the project.

SAN FRANCISCO'S PLAGUE.

Since the first case of bubonic plague was discovered in the Chinese quarter, three bodies have been found, all, the city bacteriologist thinks, dead from the same disease. These cases are apparently being concealed, for when they were reported to the authorities they were in an advanced stage of decomposition, and concealment was no longer possible. The first of these three suspects was found in a very much bloated condition, the tissues greenish-black, macerated and soft. The heart walls were thin and the ventricles distended with gas and blood. The spleen was enlarged, and there was turbid fluid in the pericardium and peritoneum. A bacillus was found in the blood, pericardial fluid, and spleen, morphologically identical with the bacillus pestis. The second body showed the same general appearance as the preceding one, but decomposition had not advanced so far. The heart walls were thin, though there were no valvular lesions; there was an excess of fluid in the pericardium; the left ventricle was empty, but there was a little blood in the right. The lungs were congested. The spleen was not enlarged. There was evidence of peritonitis. The blood contained the same bacillus found in the preceding case. In the third instance the body had the same general appearance, and the blood from the heart showed the same bacillus. The smear preparations from the spleen, which was also enlarged, also showed the same bacillus. There was considerable peritonitis in this case. Rats and guinea-pigs were inoculated with cultures made from all these cases, and one rat died on the morning of the 22d, thirty-six hours after inoculation. The city bacteriologist thinks that this rat died as a result of an excessive amount of toxins formed in the material injected. The other animals, at the present writing (March 23), are alive. The board of health has been making a house-to-house inspection of the infected district and with a largely increased force, composed of twenty-five physicians, seventy-five inspectors and fifty policemen. The entire district can thus be inspected in one day, and the inspection will be repeated from day to day until such time as the board believes the danger has passed. J. M. Williamson, president of the board of health, says there is no use evading the issue, the Chinese quarter is infested with plague. Every nook and cranny in the district will be ferreted out, and the whole neighborhood drenched with disinfectants. Suspicious cases will be isolated and their development awaited. The sewer system of the quarter, comprising 3½ miles of sewer, will be antisepticized, flushed and fumigated.

WISCONSIN.

THE STATE Board of Medical Examiners completed its session in Milwaukee, March 22, and issued licenses to 2800 practicing physicians. About 200 physicians have failed to comply with the law, and each is subject to a fine of $500.

WISCONSIN LEAGUE OF MEDICAL LICENTIATES.

Pursuant to a call, a number of Wisconsin physicians met at Milwaukee, March 6, as a temporary executive committee, to prepare for and call a convention for the purpose of forming the Wisconsin League of Medical Licentiates. The objects of this League are: 1. To unite the licensed physicians of the state into an association which may assist in securing a thorough revision of the present medical laws and an endeavor to so formulate them as to make them more effective in the accomplishment of the legitimate purposes they were intended to serve. 2. To encourage all duly qualified physicians to obtain licenses and join the league. Membership qualifications were fixed at "the possession of a license" issued by the Wisconsin Board of Medical Examiners, and being "engaged in the practice of our profession as resident physicians in a strictly ethical manner." A convention is called to meet at Milwaukee, June 22, 1900, at 2 p. m., at the Plankington House, to form a permanent organization. The secretary-treasurer is J. V. Stevens, Jefferson.

TENNESSEE.

THE PREVALENCE of influenza is reported throughout the state. Reports from several counties show over 3500 victims.

THE TENNESSEE Medical College at Knoxville will erect a new building to cost $8000, on the site formerly occupied by the college which was recently destroyed by fire.

CANADA.

DR. P. J. L. BISSONNETTE, M.L.A. for Montcalm, has been appointed a member of the Provincial Board of Health of Quebec.

AN ANTIVACCINATION meeting in Victoria, B. C., last week, conducted by a "reverend Christian scientist," broke up in a free fight.

THE PROVINCIAL Insane Asylum of Manitoba is very much overcrowded; the grand jury advises increased accommodation.

THE SISTERS of the Hotel Dieu, Montreal, are to be given a considerable strip of the Mountain Park property for hospital purposes.

DR. J. J. GIBB WISHART, Toronto, has been appointed laryngologist to the Muskoka Cottage Sanitarium, Gravenhurst.

THE CANADIAN ARMY MEDICAL SERVICE.

The control which politics exercises over our military affairs has recently been well evidenced in the circumstances leading up to the recall of Major-General Hutton. From one end of the country to the other, all the government organs, major and minor, without any true conception of the attending circumsances of the points at issue, have applauded the government's action, although in military and more especially

medical military circles its action has been considered most unwarrantable. Confidence engendered for better things in the future has thus been destroyed "at one fell swoop;" and it is stated that hope has given way to bitter disappointment, despair and even anger. Shortly after the withdrawal of General Hutton, an order was issued from the militia department which states "that hereafter any medical officer may be compelled to recoup out of his own pocket any expense to which the public may be put on account of transport, etc., of a recruit who turns out subsequently to be unfit for service, physically." The attention of the Hon. the Minister of Militia, himself a medical man, has been drawn to this order, as it is understood that it may have emanated from a less responsible source.

UNIVERSITY OF TORONTO AND MEDICAL COLLEGES OF ONTARIO.

It is a long time since such intense feeling was abroad amongst the profession in this city and province as that precipitated the other day by the introduction into the local legislature of a bill, by Dr. Angus MacKay, M.L.A., of the greatest importance to every medical college affiliated with Toronto, which is the provincial university. In order to put the whole matter in a fair and honest light before the readers of THE JOURNAL, it will be necessary to go back in medical history to the year 1887, when the old Toronto School of Medicine, by special act, became the medical department of the University of Toronto. At that time amalgamation of Trinity and Toronto was mooted, but on mature and careful consideration it was deemed impracticable and unpractical, as, even if carried out, the medical department of the provincial university would still have consisted of one teaching faculty alone, and would therefore have been as non-provincial in its character as it is now claimed to be, as not one of the other teaching medical faculties of the province would have any voice in the governance of the institution. However, the act was at that time passed through the legislature, and the medical department of Toronto University or the provincial university set up and constituted, depriving the provincial university of its provincial character. Something like five or six years ago, the agitation for the nullification of this legislation lapsed to a certain degree, to break out afresh on the introduction of the bill referred to at the outset. The proposition of Dr. MacKay, who, by the way, is a strong supporter of the present government, and equally strong in the confidence of the government, is as follows: It will provide that the medical department of the provincial university—which now consists of one set of medical teachers only—shall, after the passing of the act, consist of the medical faculties of all medical colleges, or medical schools, affiliated with the University of Toronto; also, that the examining board for degrees in medicine in the provincial university shall consist of an equal number of examiners, selected from each teaching medical college or school in affiliation with the University. These examiners shall be recommended to the senate by the respective teaching bodies to which they belong; also, that each affiliated medical college or school shall have *one*, and only *one* member, who shall represent it in the university senate, who shall be elected by the body he represents—this is to secure equality of representation in the senate. Under the existing state of affairs, it is felt to be a great wrong to the other medical colleges, that one should have been especially selected by the legislature in 1887 to constitute the medical department of the University, thus shutting out all the others from taking any interest in the University of their own province, although they contribute just as much, more, in fact, to the state aid extended to the University. Just why the provincial university should be de-provincialized in this manner, will tax the ability of the adherents to the medical department as at present constituted to answer. Prior to 1887, students in large numbers from the respective medical colleges of the province went up to the University for their examinations to receive the degree of M.B. from the provincial university, but since that date all this has been changed, and for the very reason that the students of the other colleges would hardly care to be examined by the teachers of a rival school, as all the examiners heretofore have been chosen from members of the faculty of the medical department of the University or from its adherents. A further reason lies in the fact that the curriculum of the University required a course in biology, which certain of the other colleges deemed unnecessary, and in this respect would not comply with the curriculum of the University. Now, it has been claimed, on the part of the medical department of the provincial university, that these examiners were all appointed by the senate alone, and that the medical faculty had no voice nor say in the matter, that the senate had the power to appoint whom they saw fit. Surely, if this be the case, it is an admirable argument in favor of a change, as a senate so partisan—no doubt composed of many of the medical department—that they would not in all this time appoint an examiner from any but their own department, needs rapid reorganization. Of course, Trinity Medical College and the Woman's Medical College, Toronto, come in for a good deal of adverse criticism at the hands of the medical faculty or, to be precisely correct, at the hands of some of the medical faculty of Toronto University, as being the prime instigators of this legislation. However that may be, it is not for us to say, but a leading member of the medical faculty of the provincial university in the numerous interviews appearing in the daily city press has given out that he will welcome closer relations with the other colleges of the province, although totally opposed to one particular in the bill, and that is the creation of a new medical department from all the medical faculties of the medical teaching bodies in the province. In connection with the proposed change in the status of the medical department, the educational committee of Trinity Medical College, consisting of leaders in the profession in the city, viz., Drs. W. B. Geikie (the Dean), Luke Teskey, John L. Davidson, N. A. Powell, George A. Bingham, and D. J. Gibb Wishart, has issued a circular letter to the profession throughout the city and province calling their attention to the advantages and the fairness of the proposals of the legislation, disclaiming any idea of wishing to obtain any special favors for their college, but simply as an act of justice to all the medical colleges and to the provincial university itself, as if such legislation becomes law, the University will profit by it to the extent of fees derived from other medical students who would go up for their examinations at the provincial university. It is further cited on behalf of the educational committee of Trinity Medical College that in so far as her arts department is concerned, the provincial university is really provincial, as she has a cluster of independent arts colleges, teaching, closely connected with her, each of which with its own faculty is doing its own work in its own way; and it is on these lines that the committee would have the medical colleges placed. Trinity Medical College, affiliated by special act of the provincial legislature by unanimous voice, with the provincial university, is also affiliated with Trinity University, a non-state-aided institution, and it is from this latter source that all the students of Trinity Medical College and the vast majority of those from the Woman's Medical College have received their degrees since 1887, the disadvantages of going before a rival faculty prohibiting the students of Trinity seeking degrees from the provincial university. True, each year, a dozen or a score of Toronto students present themselves before the examining board of Trinity University, mostly constituted from Trinity's faculty, but the reason of that is that these students from Toronto desire to secure at once the degree of M.D., C.M., which Trinity University grants, so as to have something in addition to the Bachelor of Medicine which Toronto bestows. The bill of Dr. MacKay is up for its second reading the coming week, and there is likely to be stirring times among the profession for some time to come.

Pemphigus of Mucous Membrane and Consequent Adhesion of Soft Palate.—G. Avellis reports the fourth case on record of adhesion of the soft palate in consequence of pemphigus limited to the buccal cavity. He suggests that possibly it may have occurred oftener and been ascribed to syphilis. (*Munch. Med. Woch.*, March 6.) He cured the case by gradual dilation with a set of Hegar's dilation sounds, bent to suggest an S, after severing the adhesions. The patient continued the dilations for four months, six to ten times a day, until the stenosis was completely conquered and he could blow his nose and breathe through it freely, the first time in five years.

Book Notices.

THE CRIMINAL: HIS PERSONNEL AND ENVIRONMENT. A Scientific Study. By August Drähms, Resident Chaplain State Prison, San Quentin Prison, San Quentin, Cal. With an Introduction by Cesare Lombroso, Professor of Psychiatry, University de Torino, Italy. Price $2. Cloth. Pp. 402. New York. The MacMillan Co. 1900.

This work is written by the chaplain of the California State Prison, and is an interesting study of crime by one who has certainly had a chance for observation. The author considers crime as a social disease, but we can hardly say with him that it is not a misfortune, at least in one important significance of the term. There is a debatable territory between the mental and moral phases of the problem as it hedges on the material, not entirely cleared up by the author's studies, as he admits. The subject of his observations on the criminal type in the order given are: the instinctive criminal, the habitual criminal, the single offender, recidivation or relapse or repeated criminality, the increase of crime, the juvenile offender and hypnotism and crime. His conclusions are such as will be generally accepted. He believes in the reformatory idea where practical, but his opinions are not expressed too dogmatically. His ideas in regard to the relation of alcohol to crime will certainly suit the reformers of the present day, though he is clearly not a prohibitionist, since he considers the South Carolina system an ideal one. The book shows quite extensive reading on this subject, but a notable omission is that of all reference to the papers of Dr. E. S. Talbot, who has perhaps done more scientific work on criminal anthropology than any other man in this country. Drähms appears not to have been aware of their existence. The introduction of the work by Lombroso is most complimentary to the author and an excellent send-off to the work.

THE NERVOUS SYSTEM OF THE CHILD: ITS GROWTH AND HEALTH IN EDUCATION. By Francis Warner, M.D., F.R.C.P., F.R.C.S., Physician to and Lecturer at the London Hospital. Cloth. Pp. 233. Price $1. New York: The MacMillan Company. 1900.

This is a work specially written for teachers, and in particular those who have the care and training of young children. It is one, however, the reading of which will be profitable also to the physician whose duties overlap in this respect those of the teacher and parent. The proper evolution of the child, the training him up in the way he should go, has been too often a haphazard or merely routine proceeding, and such an aid as this present volume ought to be welcome. It takes up only a point of the general subject of child training, that in relation to the school and education, but one that is a sufficiently extensive field. The author has given special attention to the hygienic aspects of education, and noted particularly where the functions of the teacher and the physician are interrelated. Child study, while in its present aspects comparatively a new study, is one that is worthy of the fullest attention of our profession, and this book is one that is in many ways suggestive to the thoughtful physician.

A TREATISE ON SURGERY. By American Authors for Students and Practitioners of Surgery and Medicine. Edited by Roswell Park, A.M., M.D., Professor of the Principles and Practice of Surgery and of Clinical Surgery in the Medical Department of the University of Buffalo, Buffalo, N. Y. Condensed edition, with revisions. With 625 engravings and 37 full-page plates in colors and monochrome. Cloth, $6, net; leather, $7, net. Philadelphia and New York: Lea Brothers & Co. 1900.

This condensed edition of Park's "Surgery by American Authors" is the evident result of a call by the profession for a briefer but equally authoritative and valuable treatise. The earlier edition in its two-volume form has already been noticed in THE JOURNAL, and its merits acknowledged. The present work, while abridged, has also been revised, though no extensive changes have been required or made. It will not supplant the larger work for those who wish its fuller information, but it will have a larger circulation among the mass of the profession, which will be insured, if by nothing else, by the difference in price.

Association News.

Railroad Rates for the Atlantic City Meeting.—The Committee on Transportation will shortly report on railroad rates to the meeting of the ASSOCIATION in June next. Considerable correspondence has been carried on and the Committee expects to be able to announce the final action of the railroad associations shortly.

National Legislative Conference.—At a recent meeting of the Legislative Committee of the AMERICAN MEDICAL ASSOCIATION, consisting of Drs. H. L. E. Johnson of the District of Columbia, William H. Welch of Baltimore, and W. L. Rodman of Philadelphia, it was decided, in consequence of the prolonged session of Congress, to defer the meeting of delegates in general conference until later in the session. It was definitely decided to call the delegates to meet in Washington on May 1 and 2, so their meeting will correspond with that of the American Physicians and Surgeons. Due notice will be sent to each. The Committee regrets to announce that the following state and territorial societies have so far failed to nominate or appoint a delegate to this important conference: Alabama, Arizona, Arkansas, California, Colorado, Delaware, Georgia, Idaho, Indian Territory, Iowa, Kansas, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Montana, New Hampshire, Nevada, New Mexico, New York, North Dakota, Oregon, South Carolina, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, Wisconsin and Wyoming.

Section on Stomatology.—The following is the program of this Section for the next meeting of the AMERICAN MEDICAL ASSOCIATION:

SYMPOSIUM ON DENTAL EDUCATION.

1. Relations of Dental and Oral Surgery to General Medicine: Professional Status of Properly Educated Practitioners of Dental and Oral Surgery. N. S. Davis, Sr., Chicago.
2. Preliminary Qualifications. J. Taft, Cincinnati, Ohio.
3. Course of Study. W. A. Evans, Chicago.
4. Methods of Teaching—Didactic or Recitational. A. H. Peck, Chicago.
5. Shall the Dental Student be Educated Independently of General Medicine? G. V. I. Brown, Milwaukee, Wis.
6. Is Medical Education a Necessary Qualification for Dental Practice? Alice Steeves, Chicago.
7. Practical Value of a Medical Education in Dental Practice. W. B. Hill, Milwaukee, Wis.
8. Technical Training versus Theoretic. John S. Marshall, Chicago.
9. Should the Medical Undergraduate be Instructed in the Principles of Dentistry? M. L. Rhein, New York City.
10. Post-Graduate Study in Dentistry and Degrees Therefor. W. E. Walker, Pass Christian, Miss.
11. Handwriting on the Wall: What Does It Portray? A. E. Baldwin, Chicago.
12. Limitations. Eugene S. Talbot, Chicago.

SYMPOSIUM ON INTERSTITIAL GINGIVITIS OR SO-CALLED PYORRHEA ALVEOLARIS.

13. Etiology. G. Lenox Curtis, New York City.
14. Neurotic Affections. J. G. Kiernan, Chicago.
15. Indigestion Autointoxication. Eugene S. Talbot, Chicago.
16. Chemical Factors in Etiology. W. L. Baum, Chicago.
17. Constitutional Treatment. J. H. Salisbury, Chicago.
18. Local Treatment. M. H. Fletcher, Cincinnati, Ohio.
19. So-Called Glands in the Peridental Membrane. M. H. Fletcher, Cincinnati, Ohio.
20. Evolution of Decay Continued. Arch C. Hart, San Francisco, Cal.
21. Co-operation of Public Schools in Teaching. Good Teeth, Good Health. Whatever We Wish to See Introduced into the Life of a Nation Must First Be Introduced Into Its Schools. Richard Grady, Baltimore, Md.
22. (Subject to be announced). Vida A. Latham, Chicago.

Detection of Blood for Forensic Purposes.—Ipsen states in *Viert. f. Ger. Med.*, 1, that potassium acetate and alcohol applied to the suspected blood and left to digest at a temperature of 38 to 40 C., will form alkaline hematin if blood is present, easily recognized with the spectroscope.

Deaths and Obituaries.

RICHMOND A. LEWIS, Richmond, Va., died March 18. He was born in 1824, and was graduated from Transylvania University in 1847. He was a member of the Medical Examining Board of Virginia for several years, and was at one time a professor in the Medical College of Virginia. He served as surgeon of the Twenty-first Virginia Regiment during the Civil War.

ROBERT M. GIRVIN, M.D., Philadelphia, died March 17, aged 64 years. He was a graduate of Jefferson Medical College, class of 1862, and one of the founders of the Presbyterian Hospital, a member of the College of Physicians, and of the Philadelphia County Medical Society.

JOHN D. LICKLE, M.D., principal of Grammar School No. 22, and a graduate of the Baltimore Medical College, Baltimore, Md., died March 20. He was about 56 years old, served three years in the Confederate service, and suffered, up to the time of his death, from a wound received in one of the battles in the Virginia Valley.

JOHN F. JACKSON, M.D., died at his home in Richmond, Va., March 16. He was born in Richmond in 1825, and was graduated from Jefferson Medical College in 1847.

J. W. MCDONALD, M.D., Jackson, Tenn., died March 16, aged 35. He served during the late war as assistant-surgeon of the 4th Tennessee regiment.

AMY S. BARTON, M.D., Philadelphia, died March 19, aged 59 years. She was a graduate of the Woman's Medical College of Philadelphia, class of 1874.

JOHN R. CHURCH, M.D., of Aylmer, Quebec, died recently. He was 41 years of age, and a graduate of McGill University.

I. C. BROWN, M.D., Columbus Junction, Iowa, March 21. He was a graduate of Jefferson Medical College, class of 1861.

We also note the following deaths:

Israel S. Bigelow, M.D., Buncombe, Iowa, March 21, aged 81.

William Megee, M.D., Rushville, Ind., March 17, aged 40 years.

James H. Green, M.D., Seymour, Ind., March 19.

T. H. James, Cheraw, S. C., March 16.

DEATHS ABROAD.

Lorenzo Brun, professor of surgery at Turin, and Senator.—Dr. T. Sauer, of Bonn, from autopsy lesion.—Dr. Nieberding, of Varel, in his 97th year.

Miscellany.

Masturbation in a Nursling.—Dr. Landa reported, at a recent meeting of the local medical society at Santiago de Chile, that he had observed a 9 months' girl babe who made rhythmic movements of the pelvis against its mother's side, for three minutes, terminating in a condition of complete relaxation. He has observed two other cases of evident masturbation in nurslings.

Technique of Diazo Reaction.—Burghart calls attention to the fact that ingestion of iodin and tannin and of creosote occasionally, will abolish the diazo reaction, likewise the presence of phenol in the urine. In cases of unexpected absence of the diazo reaction the cause may be an unusual amount of phenols, and they should be taken out with amyl alcohol. The urine then will frequently give the expected diazo reaction.

Zomotherapy.—Héricourt and Richet reported, at the meeting of the Paris Academy of Sciences, February 26, that in the course of research in respect to the action of raw meat in the therapeutics of tuberculosis, they found that the only active principle in the meat in this case is the muscle plasma, not the pulp. It is therefore the principles soluble in water which represent the active portion of meat. It is not a phenomenon of alimentation, as the quantity of nitrogen in the plasma is very insignificant, but rather, an immunizing action analogous to that of animal products inoculated into the veins. It is an actual muscle opotherapy, and they propose for it the term "zomotherapy."

Orthopedic Institute at Naples.—The Italians are taking high rank in their orthopedic work. The Duchess of Ravaschieri has given funds to construct and endow an orthopedic institute at Naples which is to be a model of its kind, following the outlines of the similar institute at Bologna. The surgical hospital for children at Naples is a previous gift of the duchess to the municipality. The orthopedic institute is to have three departments entirely separated: one elegantly fitted up for well-to-do patients; another for persons with moderate means, and a third free to the poor. Another department has charge of the construction of orthopedic appliances and will be prepared to fill orders from outside. Dr. A. Curcio is physician-in-chief.

Carbon Dioxid for Disinfecting Ships.—According to the *Canadian Jour. of Med. and Surg.*, March, Dr. Apery of Constantinople intends to make scientific use of an accidental discovery in disinfecting holds of vessels. A seaman on the *Polis Mytilini* died of bubonic plague. When disinfection was being carried out afterward, no dead rats were found until, in removing some casks of fermenting molasses, large numbers dead from inhaling its carbon dioxid fumes were discovered beneath the casks. The Doctor therefore advocates placing an apparatus for generating carbon dioxid in vessels' holds, when the air at the bottom will be displaced by this heavier gas, and the lowest portions being filled with this, the rodents will be asphyxiated. Repeating the generation two or three times on alternate days will, it is believed, secure certain results, as the rats, beginning to be inconvenienced by lack of oxygen, become paralyzed and die on the spot.

Improved Physiologic Solution with Natrium Saccharate.—A Schuecking announces, in the *Therap. Monatsheft* of December, 1899, that infusion of a solution of natrium saccharate neutralizes or renders harmless, in some way, the accumulating carbon dioxid in the blood, which he considers the cause of the accidents in uremic and septic conditions. He is now testing it internally, and has already established that it has a tonic effect on the heart, and will even make the isolated heart of a frog commence to pulsate anew sixteen hours after it has stopped beating. He finds a .03 per cent. solution of natrium saccharate with .6 per cent. salt the most effective combination. He relates a number of observations in which immediate relief and prompt recovery followed the subcutaneous injection of 250 grams, after the same amount of salt solution had been injected without effect, one a case of post-abortum vomiting, in the second day; others were acute anemia, and various uremic and septic accidents.

Prophylaxis of Malarial Infection.—Di-Mattei describes a series of experiments in regard to malarial infection, which he observes are the first on man carried out with all the precision of a true scientific experiment. The railroad authorities afforded him every facility, and for thirty-five days last fall he had five healthy young men from Catania, who had never been in a malarial region, conveyed after their day's work, to Valsavoja, the most notorious malarial district in the country, arriving at dusk, spending the night in the car sheds and taken home the next morning. Every person residing at Valsavoja, connected with the railroad, was infected with malaria, but none of the five subjects experienced the slightest ill effect from the experiment. Those persons who smeared themselves with turpentin to drive away mosquitoes also escaped malarial infection. He states that mosquitoes in the "dead angles" of cars may be a source of infection, and adds that they can be easily destroyed when they are attracted to the lights at certain hours.

The New Bibliographica Medica.—The success of such an undertaking, which seems to be flourishing—now that medical literature has assumed such vast proportions—is only possible with the facilities afforded by some such institution as the Institut de Bibliographie, which combines a library, a press-clipping bureau, a card catalogue of periodical and other current literature, a catalogued collection of illustrations from books and current literature, also of abstracts, summaries, *résumés* of articles and works in literature, and a collection of unpublished articles, drawings, MSS. and photographs, and a printing and engraving plant. All the articles in the Institut are circulating, that is, loaned to subscribers

on demand. It was conceived and founded by Dr. Marcel Baudouin on his return from our Columbian Exposition and is unique in the world, although it is being imitated now in Switzerland and Belgium, where similar institutions have recently been founded. Its scope is international science, but it is especially equipped for the medical sciences.

Expenses of Army Medical Department in Philippines.—The cost of the war in the Philippines has been given officially in a statement of expenditures by the U. S. War Department covering the military operations in the Philippine Islands and including outstanding liabilities, so far as can be determined, for the period from May 1, 1898, to Nov. 1, 1899. The information was sent to Congress in response to a resolution passed Jan. 30, 1900. The total amount reported is, in round numbers, $49,000,000, and of this sum the charge against the medical department is $1,206,137.13. The *Army and Navy Register* of March 17, in discussing the various items constituting the total, compliments Surgeon-General Sternberg in the following terms: "The expenditure under the medical department is another surprise. It is entirely to the credit of the Surgeon-General of the Army that his admirable administration of his well-organized and efficient department in the Philippines has been conducted at no greater cost. This economy does not in any sense approach parsimony, and there is no evidence that the health of the troops has suffered, or the wants of the sick and injured have been ignored on account of any false harboring of public funds under the medical department."

Iowa Medical and Legislative Comments.—The effect of organization in the medical profession is well illustrated by the events recently in progress in Iowa. We can best demonstrate this by the following quotation from the *Iowa Medical Journal*, February, quoting the *Des Moines Leader:*

There can be little question that, in proportion to his number, the Iowa medical practitioner is about the liveliest citizen of this commonwealth when it comes to mixing himself in affairs of state which directly affect him; even the lawyers, who are presumed to have a copyrighted privilege of running political and legislative affairs, have to take a back seat when the doctors come forward and undertake to do or prevent the doing of something. The doctors furnished a speaker of the House from among their number, and they have within the past few days been giving some excellent pointers to other classes of legislative managers.

Senator Hayward introduced a harmless looking bill to allow graduates of the state university medical department to be admitted to practice without the formality of examination. At present the law requires that all applicants for the right to practice in Iowa must be examined by the State Board of Medical Examiners, sitting in Des Moines, and must pay a $20 examination fee. The medical students at Iowa City wanted this changed. They maintained that if the state university was worthy of its name, its diplomas ought to be prima facie evidence of ability to practice. Accordingly, Senator Hayward introduced their bill, to do away with the examination for university graduates. It was favorably reported in the upper House, and seemed to have a smooth road.

And then the doctors mixed. They did not propose to accept any institution's diploma as prima facie evidence, or any other kind of evidence. They insisted that everyone must pass an examination. They did not propose, either, that the state university medical department should be given special benefits in this way, and other medical colleges be denied them. They set about to instruct the legislature as to public opinion in this matter. The legislature had never suspected that there was any opinion on the subject; it scarcely had an opinion of its own. But the doctors soon convinced it. Remonstrances came in from all over the state! they came singly and in bunches, and in basketfuls; some of them were mailed and some were sent by express; still others came in person. Delegations of physicians and representatives of medical college faculties swooped down on the legislature. The reading clerks of the two Houses almost lost their voices reading the titles to petitions, protests and remonstrances. The Senate had caused all the trouble but the House had to suffer with it. The doctors were directing things, and the petitioners were doing the rest. The Senate relented; it recommitted the bill; and yesterday afternoon the committee decided on a new report, which preserves the examination requirement, but reduces the fee to $10 and requires the Board of Examiners to meet at the seat of each medical college. In this form the bill will likely pass. But it occasioned the most remarkable and rapid crystallization of public opinion that has been known for a long time. The doctor, when he finds his interests concerned, is all on one side; he gets together and makes himself felt. The Senate now understands something the House learned a couple of sessions ago, after toying with the Prentis homeopathy bill: that the doctor is very active when he gets started: and that he is liable to start suddenly.

From the same source, quoting the Keokuk *Gate City*, we also take the following:

About every other time the name of a member of the legislature is used it has the prefix of doctor. In no state in the Union are the doctors so active in politics as in Iowa. Everywhere they are natural politicians, but in Iowa they get more for themselves, while in other states they seem more content to help the other fellow. The doctor, especially in the country districts and smaller towns, is close to the people, knows what they are thinking, and has a chance to talk to them and air his own views and learning, and it is the most natural thing in the world that he should make a good representative and be trusted in the legislature by the same people who trust him with their lives.

These extracts show what the physician can do and we venture to say that legislation other than medical will be safe in having the physician take such a prominent part in it. Of course there is a danger of the doctors becoming politicians, but if they restrict their actions to subjects of professional interest this objection will be a very insignificant one. Doctors are generally good citizens. They are nearer the people than almost any other class, and there is no reason why they should not be good legislators and speak on matters where their knowledge and qualifications are in demand. The example of the Iowa physicians should be followed in every state in the Union and then we would hear less of some of these frauds and public nuisances that are so prominent at the present time.

BOOKS AND PAMPHLETS RECEIVED.

Acknowledgement of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review as dictated by their merits, or in the interests of our readers.

BOOKS.

DISEASES OF THE NOSE AND THROAT. By J. Price-Brown, M.B., L.R.C.P.E., Member of the College of Physicians and Surgeons of Ontario. Illustrated with 159 Engravings, Including 6 Full-Page Color-Plates and 9 Color-Cuts in the Text. Extra Cloth, $3.50 net. Philadelphia, New York, Chicago: F. A. Davis Company. 1900.

IRRIGATION TREATMENT OF GONORRHEA. Its local complications and sequelæ. By Ferd. C. Valentine, M.D., Professor of Genito-Urinary Diseases. Illustrated by 57 Engravings. Muslin, $2 net. New York: William Wood & Co. 1900.

OHIO MEDICAL SOCIETY. Transactions of Fifty-fourth Annual Meeting, held at Springfield, Ohio, May 10, 11, 12, 1899. Edited by P. Maxwell Foshay, M.D., Cleveland.

TRANSACTIONS OF MEDICAL ASSOCIATION OF STATE OF ALABAMA. Session at Mobile, April 18-21, 1899. Montgomery, Ala.: Brown Printing Co. 1899.

TRANSACTIONS OF MEDICAL SOCIETY OF NEW JERSEY. 1899. Newark, N. J.: L. F. Hardham. 1899.

THE SOUL OF MAN. By Paul Carus, M.D. Second Edition. With 182 Illustrations and Diagrams. Paper, pp. 482. Price $.75. Chicago: Open Court Publishing Co. 1900.

PAMPHLETS.

CASE OF BLASTOMYCETIC DERMATITIS ENGRAFTED ON SYPHILITIC ULCERS. By Henry G. Anthony, M.D., and M. Herzog, M.D., Chicago. Reprinted from Jour. of Cut. and Genito-Urinary Dis.

CASE OF CEREBRAL HEMORRHAGIC PACHYMENINGITIS WITH PSEUDOBULBAR PALSY. By Chas. W. Burr, M.D., and D. J. McCarthy, M.D., Philadelphia. Reprinted from Jour. of Nervous and Mental Dis.

DIABETES AND ITS CONSTITUTIONAL TREATMENT: FUNCTIONAL GASTRIC DISEASES AND THEIR TREATMENT: SLEEPLESSNESS, ITS CAUSES AND TREATMENT: DIFFERENTIAL DIAGNOSIS OF NEURASTHENIA AND ITS TREATMENT. By Elmore S. Pettyjohn, M.D., Alma, Mich. Reprints.

DIAGNOSIS OF NERVOUS SYPHILIS. By Charles W. Burr, M.D., Philadelphia. Reprinted from University Med. Mag.

FATAL PERFORATION OF UTERUS PARTIALLY ATROPHIED POST-PARTUM. Medicolegal Case. By C. S. Bacon, M.D., and M. Herzog, M.D., Chicago. Reprinted from Am. Jour. of Obstet., Etc.

HEART IN LIFE INSURANCE: THERAPY OF THE NITRITES. By J. N. Upshur, M.D., Richmond, Va. Reprints.

HOSPITAL REPORTS (SAN FRANCISCO POLYCLINIC): Three Cases of Ectopic Gestation: TORSION OF PEDICLE OF OVARIAN TUMOR WITH ACUTE SYMPTOMS. By Henry J. Kreutzmann, M.D., San Francisco. Reprints.

HOW FAR HAS SPECIALISM BENEFITED THE ORDINARY PRACTICE OF MEDICINE? IMPERFECT OR DEFICIENT URINARY EXCRETION AS OBSERVED IN CONNECTION WITH CERTAIN DISEASES OF THE SKIN. By L. Duncan Bulkley, A.M., M.D., New York City. Reprints.

NATURE OF NEURASTHENIA: A STUDY OF RECENT LITERATURE. By Rosalie M. Ladova, B.S., M.D., Chicago. Reprinted from Medicine.

NOSE A FACTOR IN POST-OPERATIVE DISEASE. By H. O. Pantzer,

M.D., Indianapolis, Ind. Reprinted from Am. Jour. of Obstet., Etc.

PATHOGENESIS OF FUNCTIONAL NERVOUS DISEASES AND THEIR PROPHYLACTIC INDICATION. By John Punton, M.D., New York City. Reprinted from Medical Record.

PERFORATING WOUNDS OF THE EYEBALL. By Willis O. Nance, M.D., Chicago. Reprints from the Chicago Clinic.

PROCEEDINGS OF PATHOLOGICAL SOCIETY OF PHILADELPHIA. February, 1900. Paper. Published by the Society. 1900.

SIGNIFICANCE OF LACERATION OF CERVIX UTERI. By H. O. Pantzer, M.D., Memphis, Tenn. Reprinted from Memphis Lancet.

STATISTICS OF LOOMIS SANATORIUM, LIBERTY, N. Y. Reprinted from Phil. Med. Jour.

TWENTY-FOURTH ANNUAL REPORT OF MANAGERS AND OFFICERS OF N. J. STATE HOSPITAL AT MORRIS PLAINS; For the Year Ending Oct. 31, 1899. Trenton, N. J.: MacCrellish & Quigley. 1899.

VOLUNTARY LATERAL NYSTAGMUS; MEDICAL OPHTHALMOSCOPY. By William E. Gamble, B.S., M.D., Chicago. Reprints.

X-RAY AS DIAGNOSTIC AGENT IN PULMONARY DISEASES. By J. Edward Stubbert, M.D., Reprinted from Philadelphia Med. Jour.

TRADE PAMPHLETS.

ESSENTIALS OF HEMATOLOGY. A Practical Guide to the Clinical Examination of the Blood for Diagnostic Purposes. Illustrated. Paper. Yonkers, N. Y.: Palisade Manufacturing Co. 1900.

LACTOPEPTINE MEDICAL ANNUAL. Presented to Physicians with Compliments. Yonkers, N. Y.: New York Pharmacal Association.

Queries and Minor Notes.

SHALL A "RANK ADVERTISER" BE DEFENDED?

PITTSBURG, PA., March 19, 1900.

To the Editor.—Is a member of the regular profession, either medical or dental, who is in good standing in the societies, justified in testifying in cases of malpractice suit in behalf of a rank advertiser? I shall be pleased to have a brief answer in the next issue of THE JOURNAL. Very truly yours,

S. L. McC.

ANSWER.—The question is too categorical for a direct answer, but on general principles we should say "No."

The Public Service.

ARMY CHANGES.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., March 9 to 15, 1900, inclusive:

George E. Bushnell, major and surgeon, U. S. A., member of examining boards in Washington, D. C., and Fort Meyer, Va., relieving Major Walter Reed, surgeon, U. S. A.

Emilio F. Cabada, acting asst.-surgeon, from Denver, Colo., to the Department of California.

R. E. Caldwell, acting asst.-surgeon, leave of absence from the Department of Puerto Rico extended.

W. Fitzhugh Carter, major and surgeon, U. S. A., from the Division of Cuba to Fort Totten, N. Y.

George D. DeShon, major and surgeon, Vols. (captain and asst.-surgeon, U. S. A.), surgeon 11th Cavalry, U. S. V., honorably discharged from the volunteer service on tender of resignation, to take effect March 14, 1900.

Charles E. B. Flagg, captain and asst.-surgeon, U. S. A., relieved from further duty at San Francisco, Cal., and assigned to duty at Fort Grant, Ariz.

Edwin F. Gardner, major and surgeon, U. S. A., from Fort Grant, Ariz., to San Francisco, Cal., and then to Manila, P. I., for duty in the Department of the Pacific and 8th Army Corps.

Philip F. Harvey, major and surgeon, U. S. A., member of a board at San Francisco, Cal., to examine officers for promotion.

James M. Kennedy, captain and asst.- surgeon, U. S. A., member of an examining board at San Francisco, Cal.

Clarence J. Manly, lieutenant and asst.-surgeon, U. S. A., from the hospital ship *Missouri* to duty with troops on the first available transport leaving for Manila, P. I., reporting on arrival for duty in the Department of the Pacific and 8th Army Corps.

Henry Morell, acting asst.-surgeon, from Slayton, Minn., to the Department of California.

John J. Reilley, acting asst.-surgeon, from the hospital ship *Missouri* to duty with troops on the first available transport leaving for Manila, P. I., reporting on arrival for duty in the Department of the Pacific and 8th Army Corps.

Henry S. Turrill, major and surgeon, U. S. A., from Fort Totten, N. Y., to San Francisco, Cal., and thence to Manila, P. I., for duty in the Department of the Pacific and 8th Army Corps.

FOR ARMY REORGANIZATION.

A bill for the reorganization of the army (H. R. 9705) has been introduced into the House of Representatives by Mr. McClellan, of New York. Its provisions, so far as they relate to the medical department, are as follows:

SEC. 8. That the medical corps shall consist of one chief surgeon with the relative rank, the pay and allowances of a brigadier-general; ten surgeons with the relative rank, the pay and allowances of a colonel; twenty surgeons with the relative rank, the pay and allowances of a lieutenant-colonel; one hundred and ten surgeons with the relative rank, the pay and allowances of a major; one hundred and sixty assistant-surgeons with the relative rank, the pay and allowances of a captain; two hundred and fifty hospital sergeants, who shall have the pay and allowances of hospital stewards; one hundred pharmacists with a compensation of $40 per month and the allowances of acting hospital stewards; four hundred hospital corporals with the pay and allowances of acting hospital stewards, and three thousand privates: Provided, That all vacancies in the medical corps created or caused by this section shall, as far as practicable, and subject to the prescribed examination, be filled by promotion, according to seniority, as now provided by law: Provided further, That all vacancies in the grade of assistant-surgeons shall be filled by competitive examinations, as now provided by law.

Acting assistant-surgeons may be appointed by the chief surgeon, with sanction of the Secretary of War and under such regulations as may be prescribed by him, for temporary service whenever imperatively necessary, at a compensation not to exceed $150 per month: Provided, That no one shall be appointed until he shall have passed a satisfactory professional, mental, moral and physical examination.

The number of medical officers in service under existing laws is 192, Mr. McClellan, therefore provides for an increase of 305 officers, to comprise 4 colonels, 10 lieutenant-colonels, 60 majors, and 235 captains and lieutenants.

NAVY CHANGES.

Changes in the Medical Corps of the United States Navy for the week ended March 17, 1900:

Asst.-Surgeon B. L. Wright, commissioned assistant-surgeon from May 13, 1899.

Asst.-Surgeon R. W. Plummer, commissioned assistant-surgeon from June 17, 1899.

Asst.-Surgeon O. M. Eakins, commissioned assistant-surgeon from Oct. 31, 1899.

Asst.-Surgeon H. E. Odell, commissioned assistant-surgeon from Nov. 8, 1899.

Asst.-Surgeon J. S. Taylor, commissioned assistant-surgeon from Nov. 8, 1899.

Asst.-Surgeon E. Davis, commissioned assistant-surgeon from Nov. 21, 1899.

Surgeon O. Diehl, detached from the naval recruiting rendezvous, Philadelphia, Pa., and ordered home and to wait orders.

P. A. Surgeon C. H. T. Lowndes, ordered to the Naval Academy, March 14.

Asst.-Surgeon F. E. McCullough, order of March 8, detaching from the *Nero* and ordered to the *Philadelphia* immediately.

Asst.-Surgeon T. M. Lippitt, detached from the *Baltimore* and ordered to such other duty on the Asiatic station as the commander-in-chief may assign.

Pharmacist F. Wood, detached from the Washington navy yard and ordered to be examined, March 15, for retirement, and thence home and to wait orders.

P. A. Surgeon C. F. Stokes, detached from the Naval Hospital New York and ordered to the *Buffalo*.

P. A. Surgeon B. R. Ward, detached from the *Independence* and ordered to the Naval Hospital, Mare Island, Cal.

P. A. Surgeon C. D. Brownell, detached from the *Solace* and ordered home and to wait orders.

Asst.-Surgeon R. Spear, detached from the *Constellation* and ordered to the Naval Hospital, New York.

Asst.-Surgeon O. M. Eakins, detached from the Naval Academy and ordered to the *Buffalo*.

Asst.-Surgeon J. T. Kennedy, ordered to the *Independence*.

Asst.-Surgeon J. Stepp, detached from the Naval Hospital, Mare Island, Cal., and ordered to the *Solace*.

MARINE-HOSPITAL CHANGES.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the United States Marine-Hospital Service for the 7 days ended March 15, 1900:

P. A. Surgeon H. S. Geddings, to assume temporary charge of the hygienic laboratory.

P. A. Surgeon G. B. Young, granted leave of absence for four days from March 20.

P. A. Surgeon H. S. Cumming, to proceed to Millboro, Va., for special temporary duty; then to rejoin station.

Asst.-Surgeon C. W. Wille, upon being relieved from duty at Boston, Mass., to proceed to the Cape Charles quarantine station and report to the medical officer in command for duty and assignment to quarters.

Acting Asst.-Surgeon B. W. Goldsborough, granted leave of absence for 5 days from March 15.

Hospital Steward F. A. Southard, relieved from duty at the port of New York City and directed to proceed to Baltimore, Md., and report to the medical officer in command for duty and assignment to quarters.

Hospital Steward C. A. Warhanik, upon being relieved from duty at Baltimore, Md., to proceed to New York City and report to the medical officer in command for duty and assignment to quarters.

CHANGE OF ADDRESS.

Alford, J. M., from Gallman to Fernwood, Miss.
Bird, J. H., from 102 S Ewing to 511 N. Garrison, St. Louis, Mo.
Bixby, J., from Kansas City Mo., to Diller, Neb.
Bettman, B., from London, England, to 2522 Michigan Ave., Chicago, Ill.
Cone, D. E., from Binghampton, N. Y., to 938 S. Main, Fall River, Mass.
Cutzmeyer, C. H., from Iowa City to Waverly, Iowa.
Carver, S. C., from 413 Ogden Ave, Chicago, to Winterset, Iowa.
Dowell, G. S., from Kansas City to Chillicothe, Mo.
Evans, M. H., from Spring Valley, Ill., to Joplin, Mo.
Harbeck, J. H., from Cuernaraca, Mexico, to Boulder, Colo.
Lodge, A. V., from Kansas City, Mo., to Erie, Kan.
McVicker, W. D., from Kansas City, Mo., to McPherson, Kan.
McPherson, O. P., from Kansas City, Mo., to McPherson, Kan.
Marty, L. A., from Kansas City to Jamestown, Mo.
Miller, Wm., from Rio Grande to Vinton, Ohio.
Marvel, H. V. from 4612 Cedar to 5046 Baltimore Ave., Philadelphia, Pa.
Miller, C. B., from Keats to Scranton, Kan.
Omer, W. J., from Kansas City, Kan., to Lamon, Iowa.
Prioleau, W. H., from Thomasville, Ga., to 5 E Battery, Charleston, S. C.
Porter, George, from Kansas City to Lathrop, Mo.
Poole, M. H., from Indianapolis, Ind., to Sanitarium, Battle Creek, Mich.
Reagin, C. G., from DuQuoin, Ill., to Elizabeth, Colo.
Rieman, W. H., from Cass City, Mich., to Millersburg, Ind.
Shaw, J. C., from Topeka to Horton, Kan.
Sjoquist, J., from 23 Ashland Boul. to 603 W. Foster Ave., Chicago, Ill.
Swink, W. T., from Nashville to Jackson, Tenn.
Woodruff, L., from Alton to 2805 W. Broad, Columbus, Ohio.